FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

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EDITORIAL COMMENT.

LAST week a meeting was held of Members of Parliament, under the chairmanship of Mr. Joynson-Hicks, interested in the air services, the object being to consolidate Parliamentary air interests and to work for the "unification" of the Services under an Air Ministry. While we welcome the move and approve of the motives prompting it, we could find it in our heart to wish that the air party in the House had more of a definite programme upon which to base reform. Certainly, the word unification used in connection with the air services would seem to indicate that the Members who met to discuss the matter are not averse to seeing reform take the shape of the creation of a single air service, such as we have emphasised the need of for long enough now. As a matter of fact, we know that a number of members of Parliament are of the opinion that the single service is necessary and that it must come, but so far as we know the air party—if we may call it that—has not adopted the watchwords of "One Air Service; One Uniform; One Badge," as its official programme. Rather does it seem content to wait on circumstances. The attitude, by implication, is that of waiting until the intentions and wishes of the Government are known before definitely adopting any particular platform. If the Government comes to the conclusion that the interests of the Empire will be best served by the creation of an Imperial Air Service, well and good. If, on the other hand, the Government cannot see things in this light and is determined to carry out the war with the air services organised on their present basis, equally well and good, and the air partly will do all that in them lies to keep pressure on the Government with a view to making the very best of a bad arrangement. That is the way we see it. If the Parliamentary Air Party has any different programme to this, we are sorry for having misunderstood it, but it has only itself to blame for the misunderstanding. There is nothing, when reforms are in the air, like having a clear cut and definite scheme to start with.

"One Air Service; One Uniform; One Badge."

Lord Montagu has put forward a very clear and constructive policy for the creation of a single service. It is not ideal, perhaps, but it is thoroughly sound in principle. Indeed, with the single exception of the organisation of the Board to which we alluded last week, it scarcely falls short of the ideal working arrangement for carrying out in practice what we have for a long time insisted is the proper line of procedure. As we said then, if Lord Montagu will give us the machinery for creating an aerial War Staff, and place strategy and operations at the top instead of at the bottom of the scheme, we are absolutely with him. If the Parliamentary Air Party will take hold of the Montagu scheme and push it for all they are worth, until the Government is forced to its adoption, either as it stands or in a slightly modified form, they will have deserved well of the country.

In the meantime, we have entered the fourth year of war and are still tinkering with our air services. Instead of recognising the obvious and doing what will have to be done sooner or later, the Government goes on with its attempts to reorganise the air services on a basis which the tests of war have shown to be radically unsound. It is unsound, no matter from what point of view it is regarded. In the wider operations of the war it has failed in strategy, in that it has no strategy. It has created a line of demarcation between the two fighting branches which has been productive of endless jealousy and friction. It has been wasteful of money and it has stifled output, so that the country has not even received decent value for the money that has not been actually thrown away. All along the line the system has been

a proved failure—and yet we keep on attempting to "reorganise" instead of getting rid of it, root and branch, in favour of the scheme that *would* work.

There is one peculiar aspect of the matter, and that is this. Both in and out of the Air Services there is practically a consensus of responsible opinion in favour of the immediate creation of a single service. In all the mass of correspondence we have received bearing on the subject, there has not been a single dissentient note. Neither from our Service correspondents, nor from any outside student of air policy have we had one word in defence of keeping things as they are and of attempting to improve while preserving the present duality of the services. Opinion is unanimous that there is only the one thing to be done—to carry out at once the policy which is embodied in the words which head this article. That being so, it passes comprehension that the Government still appears to stick tight to the policy which has been proved wrong. Is it, we wonder, that the advisers of the Prime Minister are more concerned about what might happen to them and their jobs if the policy were changed than they are with efficiency? We should not like to think it, but——!

* * *

Another Bureaucratic Department.

Dr. Addison, having very successfully set labour by the ears during his term of office as Minister of Munitions, has had a new job created for him and is to be Minister of Reconstruction—with a good salary, it goes without saying. Doubtless the creation of the new Ministry is a useful move, though we are suspicious of any further extensions of bureaucracy. The problems which will confront the country after the war will be infinitely more difficult of solution than even the organisation for victory and we should be content with the latest action of the Government had a Minister been appointed who knew something of the conditions under which industry and commerce are normally conducted, but we honestly cannot conceive that a lecturer on anatomy, however distinguished, who has already been comparatively a failure at one Ministry, is to make good at the head of a Ministry of Reconstruction. Moreover, Dr. Addison is a politician as well as an anatomist, and a politician of very settled convictions, and therefore not at all the type, in our opinion, to be entrusted with the guidance of Imperial policy in a matter of such magnitude and moment as the reconstruction of our industries after the war. He is a rabid Free Trader, to begin with. Let us hasten at once to say that we should be equally in opposition to the appointment if he were as pronounced a Tariff Reformer. What we object to *in toto* is the appointment of *any* professional politician, no matter what particular shade of politics he may affect. Now, to take as an illustration this question of our fiscal system. Without committing ourselves to any statement of fiscal faith, one way or the other, we imagine that most thinking people will agree that we shall have to discuss the possibility of change in the pre-war system as soon as we are able to envisage the end of the war. We may continue as a Free Trade country. We may, on the other hand, be compelled to adopt a Tariff policy. But whichever way it ultimately goes, a decision will have to be taken and that decision will be one of the gravest we have ever taken as a nation. That means, if it means anything at all, that the matter must be approached with an absolutely open mind—there can be no paltering with articles of professed political faith, and the man who comes before the nation with a mind already soaked in the traditions of either Free Trade or Tariff is eminently unsuited to be the country's guide, philosopher and friend. We should infinitely prefer to see a man of the type of Sir Eric Geddes at the head of the Ministry of Reconstruction in preference to a professional politician. The one is the best type of business man, shrewd, strong and with a mind capable of striking an even balance in dealing with great affairs. The other is—well, a professional politician without even the pretence of a business training. Surely, there is somewhere in the country another Sir Eric Geddes—we cannot be reduced to the necessity of putting our industrial and commercial future into the hands of a more or less distinguished doctor-politician.

* * *

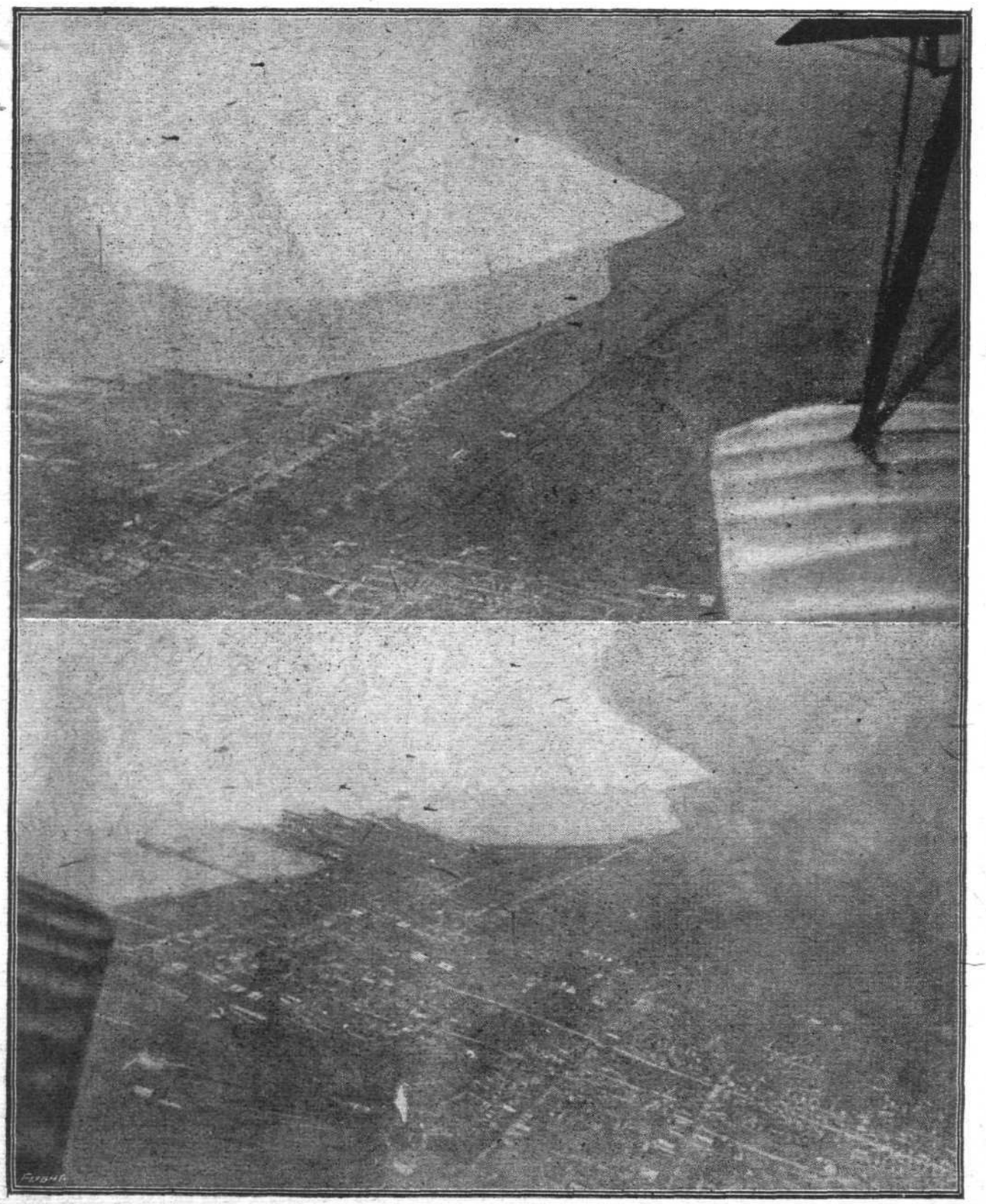
We Want More Machines!

We do not know what programme of aeroplane construction the Government has adopted, and if we did know it is quite obvious we could not disclose the knowledge. But whatever that programme may be, we have little hesitation in saying that it is probably not nearly large enough. In saying this we do not for a moment desire it to be thought that we are inclined to be critical without knowledge. What we rather have before us is the undoubted fact that, however large may be the programme of construction, it must still fall short of our real requirements so long as it does not touch the absolute maximum of our capacity for output. Even if it reached that point, we still doubt if we should have enough machines to dominate the enemy absolutely—to blind his observation and to seek out his strong and weak places. It may be that we are asking for the utterly impossible, but even if that is the case, we submit that it is far better to strive for the unattainable in these matters than to be content with the reasoning that something less than the ideal will do. This war is going to be won by the side that can establish an overwhelming superiority of observation, and which can carry the war over and beyond the enemy's lines, using its aircraft as long range artillery for the destruction of his munition works and dumps and for cutting his communications.

It follows that, if we take these objects as they are set down here, we cannot carry them all out simultaneously in the present state of our aerial armament. Again there is no criticism implied either of men or of methods. We have had to create an industry to perfect the aerial arm and that cannot be done in a day or a week. These things being progressive, we have to do the most essential first and, therefore it falls to be decided which of the several tasks is the most essential to be carried out first. In this case the decision is easy, since it is very obvious that the first thing to be done is to blind the enemy's artillery and to seek out his batteries in order that they may be the easier destroyed by our own gunners. That being so, it follows that the types of machines in which we stand in most need are single-seater fighters to drive off enemy observers and protect our own artillery observation machines. Of course, we also want heavy bomb-droppers to carry out the second part of the programme, but relatively these are of second ary importance. The point is that we cannot estab lish the necessary overwhelming superiority at the Front if we divide our energies and go for a multiplicity

of types—the rock on which we have so far split. As that is so, we must endeavour to establish our superiority in the types that immediately matter and must go all out for the fighting and reconnaissance machines, letting the heavier types—vitally important as they are—take second place until we have so definitely established our superiority that we are free to devote our energies to the production of machines for the carrying out of the secondary objective. We do not mean that we should neglect the construction of the heavier types, any more than, knowing that the most useful howitzer is probably the six-inch we should advocate the stoppage of manufacture of pieces of other calibres. But as in the manufacture of guns we make the all-round best type our "leading line" so in the matter of aeroplane construction we should make the output of fighting and observation machines our first consideration.

We have not lost sight of the fact that America appears to be concentrating mainly on machines of



By courtesy of "Flying."

"THE RAIDERS."—These two interesting photographs, taken from a machine "somewhere in America," give an idea of an air raid from the raider's point of view—coming in, and going home.

the types we advocate, but it will not do for us to rely on anyone but ourselves, at least in the meantime. America has still a great deal of organisation to do before she can achieve a great result, and much is likely to happen before she can really get going. When at last she is able to supply us with all the fast machines necessary to maintain a crushing supremacy, then we can concentrate on the heavy bomb-droppers. Until then we must bend all our energies to the objects we have set forth.

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Demobilisation Problems. The Ministry of Labour has just issued a joint report dealing with some of the questions that will arise after demobilisation. The report covers a conference held under the presidency of Mr. R. A. Bray, during which a discussion arose regarding the necessity for approaching employers with a view to inducing them (*a*) to notify discharges of juveniles in advance, (*b*) to notify all vacancies to juvenile employment committees during the period of demobilisation, and (*c*) to consider and formulate schemes of apprenticeship and training. The conference felt that, for the benefit of children, parents and employers, some arrangement should be made which would prevent the children from wandering from one employer to another in search of work. It was also agreed that every effort should be made to provide training for young people engaged in industry.

This touches closely upon the matters dealt with in our article on "A Revival of the Apprentice System" in our issue of the 5th inst. To our way of thinking, much of the future of skilled labour is bound up in a revival of the system of apprenticeship, and, as we have no wish to labour the point, we would refer our readers to what we said in the article we have mentioned.

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The Education of the Apprentice. A most useful and interesting report on the education of apprentices has just been issued by the Council of the N.E. Coast Institution of Engineers and Shipbuilders, in which the whole subject of technical education is reviewed at length and certain excellent suggestions made for its carrying out from the time the boy leaves school until he has definitely settled down to his life's career. It is a document which should be read and studied by all in the aircraft industry who are interested in keeping up a high standard of efficiency in the engineering trades.

Briefly, the Report recommends that boys who are prospective apprentices should be drafted at the age of 12 or 13 to junior day technical schools for a three years' course of general education, including amongst other subjects, mathematics, mechanics, machine drawing and manual training. Employers should give preference to youths training in these schools, and in future the selection of apprentices should be the function of a member of the administrative staff of the works, in close consultation with the headmasters of the junior technical day schools. From among the lads selected for apprenticeship, a further selection (a small percentage) should be made of those showing exceptional ability, solidity of character, and general promise at the beginning of the period of apprenticeship. These lads should spend half the week in the works and the other half at a local technical college, in which they would receive a special two years' course of technical education. From this class would ultimately be drawn the foremen and higher officers of the industries. At the end of this two years' course a second selection would be made, and those selected should pass direct to the university for the full engineering or naval architecture degree courses.

It is further recommended that the remainder of the boys—those passing into the works as ordinary apprentices—should be liberated from the works for at least two half days per week, and if possible three, for the purpose of attending part-time continuation classes. That attendance should be compulsory up to 18 years of age, and the time spent should be regarded as a part of the apprenticeship period, with no reduction in wages. While undergoing the actual apprentice training, provision should be made for definite practical instruction by expert craftsmen in the shops.

These are the bare bones of the scheme, which seems to us to be excellent. There is no doubt about it that if we are to regain our industrial prestige, and maintain it, after the war, our whole system of technical training will have to be drastically revised. As we pointed out in a previous issue of "FLIGHT" when dealing with the same subject, our present system—or want of system—has resulted in filling our industries with workmen who cannot really be classed as craftsmen at all in the proper sense of the term. They are often good enough men of their hands, but there it stops—they know nothing at all of the why and wherefore of the work they are doing and they are, at that, too often one or at best two-process workers. With a well-considered scheme of apprentice training such as is outlined in the Report with which we are dealing, enormous improvement would result and a constant reinforcement of really skilled labour would be assured. Moreover, the selective process recommended would ensure that every boy at the outset of his career would be given a full opportunity to turn his abilities into a channel in which they would have the best scope, to the manifest benefit of himself and of the particular branch of industry concerned.

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Honours for Zepp. Strafers.

IT was announced in the *London Gazette* on August 7th that His Majesty the King had been graciously pleased to approve of the following awards in recognition of conspicuous gallantry and determination displayed in connection with the destruction of an enemy airship:—

Military Cross.

2nd Lt. (T. Lt.) F. D. HOLDER, E. Kent R. and R.F.C.

Military Medal.

506 Sgt. SYDNEY ASHBY, R.F.C.

"Mentioned in Despatches."

IT was announced by the War Office on August 7th that the names of the following have been brought to the notice of the Secretary of State for War for valuable services rendered in connection with the war:—

Qr.-Mr. and Hon. Lt. (Temp. Lt.-Col.) A. FLETCHER, M.C., R.F.C.

Qr.-Mr. and Hon. Lt. (Temp. Major) W. J. D. PRYCE, R.F.C.

Work of French Naval Air Service.

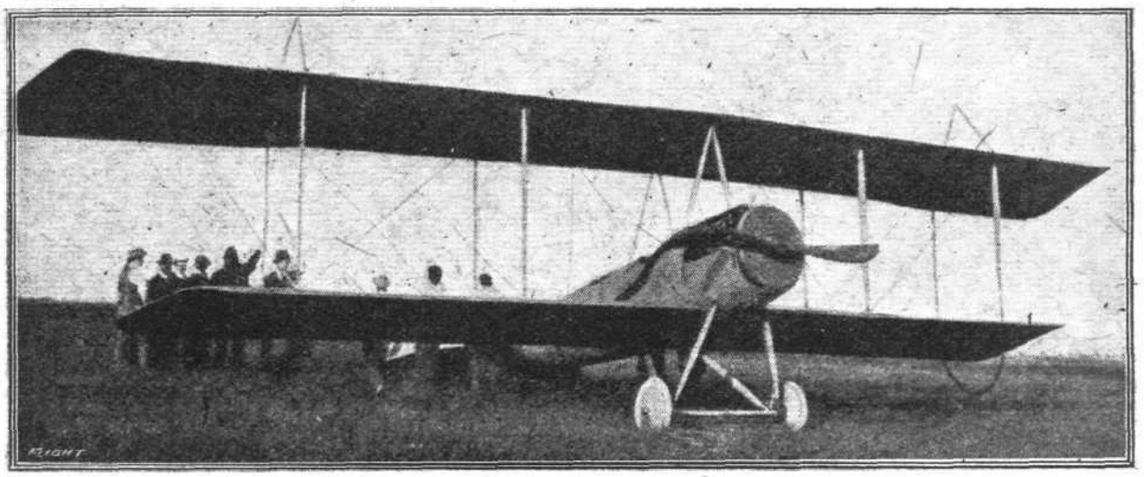
IT is announced from Paris that during June French seaplanes carried out 3,139 flights; attacked German submarines on 10 occasions; discovered in six cases enemy minefields; and took part in nine night bombardments on enemy bases. They also carried out some reconnaissances at a considerable distance from their base. During the same period French naval airships made 141 trips, representing a total of 483 hours in the air.

FLIGHT

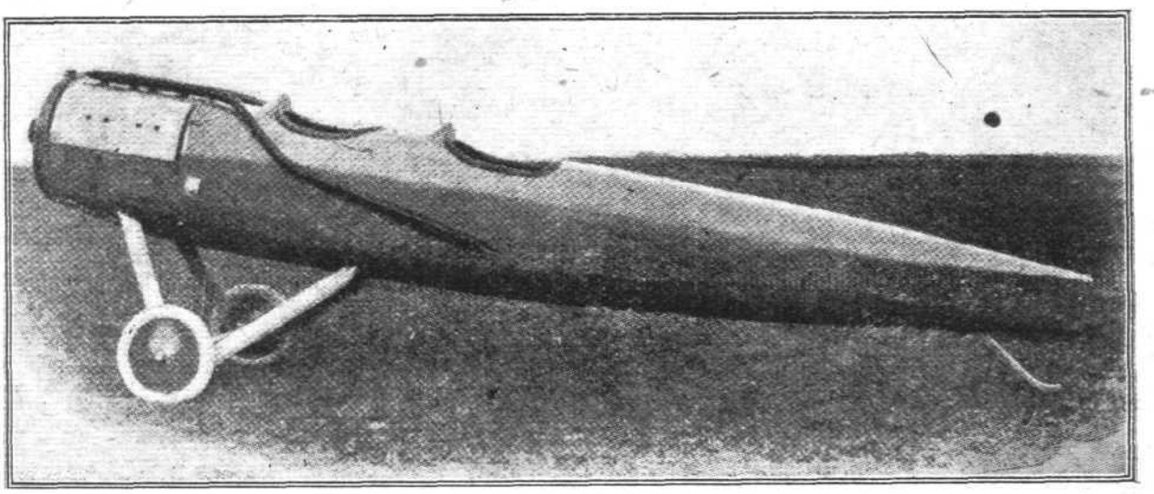
THE L.W.F. TRACTOR BIPLANE.

There is a double meaning in the mystic denomination "L.W.F." In one case it gives the initial letter of the name of each of the three members of the L.W.F. Engineering Company (of Long Island, N.Y., U.S.A.)—Messrs. Edward G. Lowe, Jr., Chas. F. Willard, the designer of the machine, and Robert G. Fowler, the pioneer exhibition flyer. It is also symbolic of one of the main features of the machine, viz.—the Laminated Wood *Fuselage*.

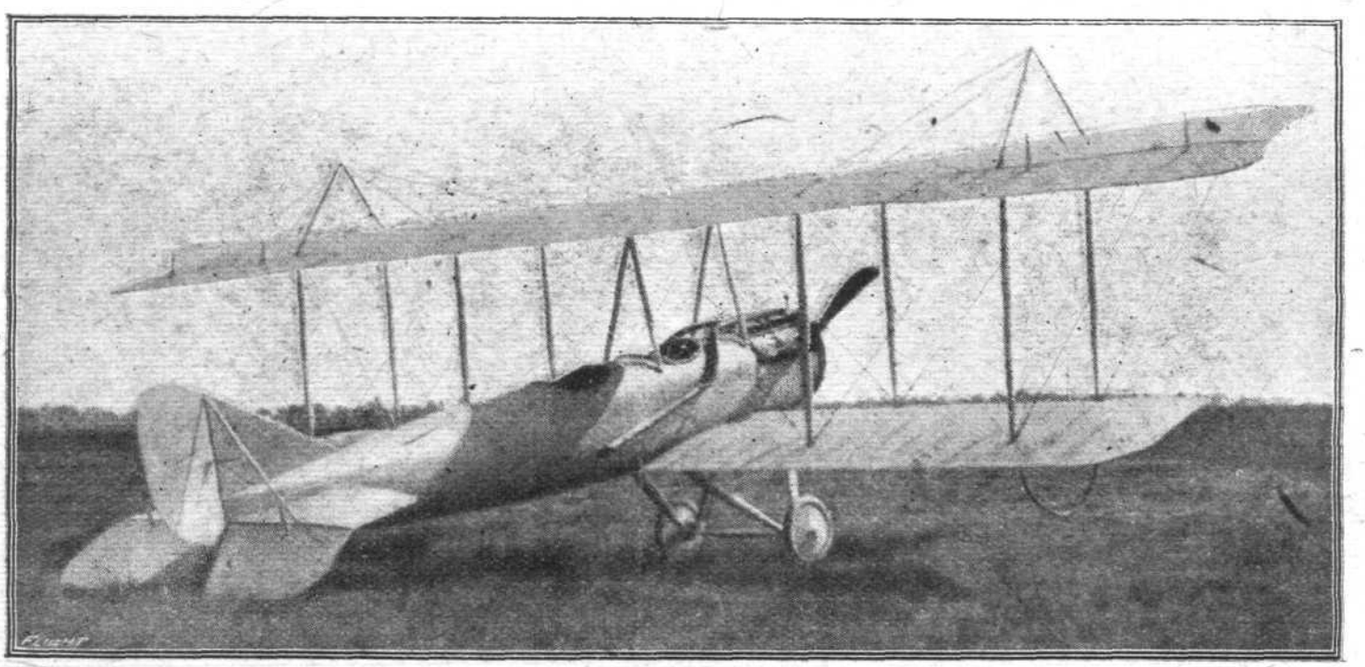
One of the aims of the designer has been to, as far



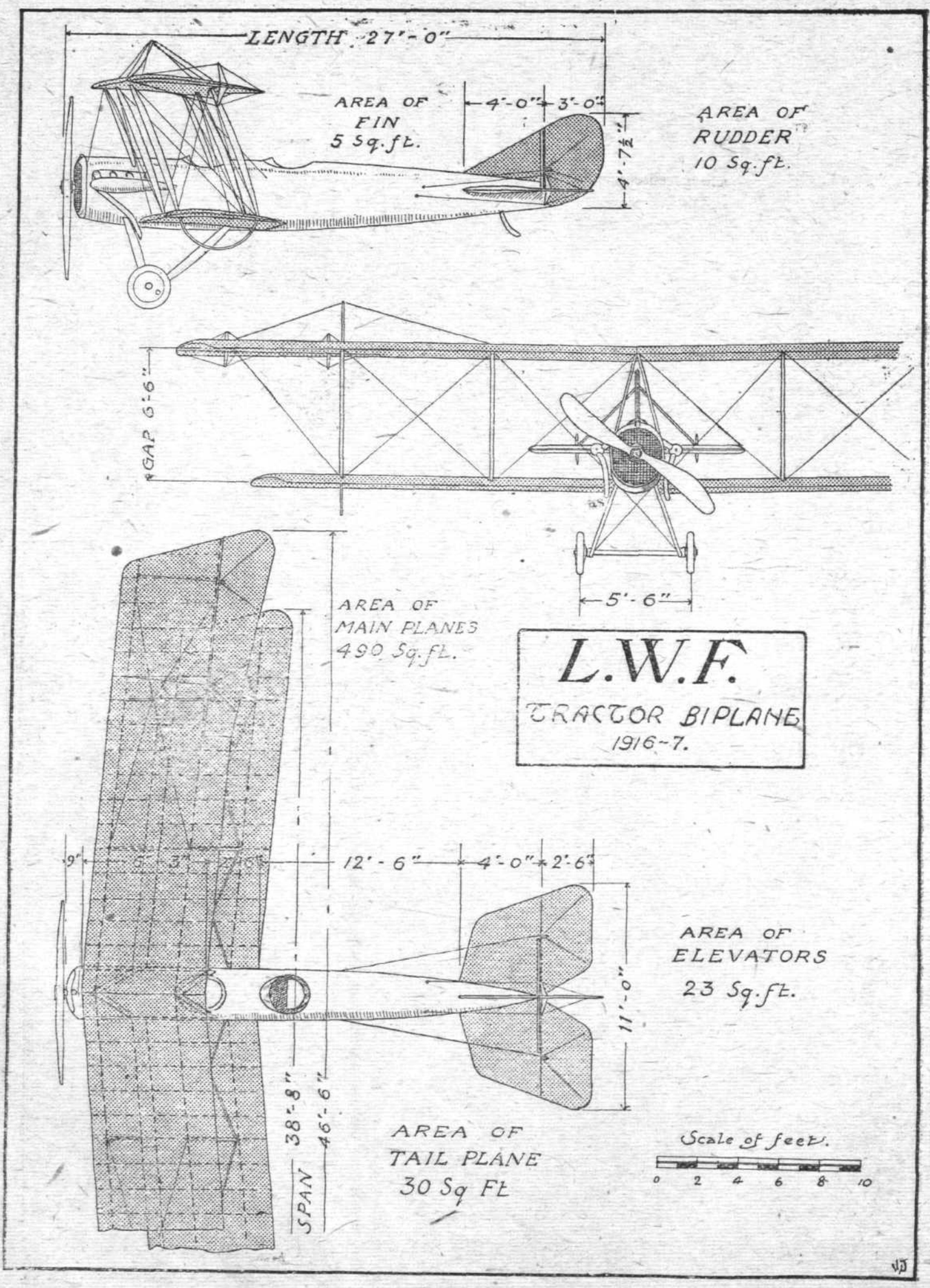
Three-quarter front view of the L. W. F. tractor biplane.



The laminated wood *fuselage* of the L.W.F. tractor biplane.

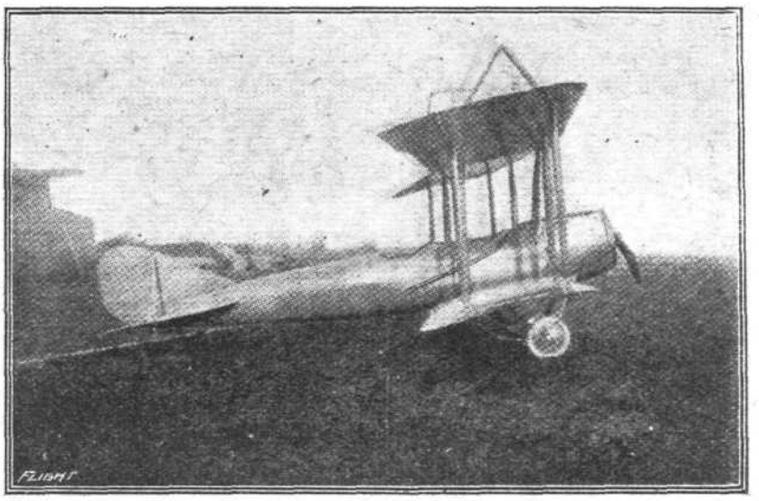


Three-quarter rear view of the L.W.F. tractor biplane.



THE L.W.F. TRACTOR BIPLANE.—Plan, side and front elevations to scale.

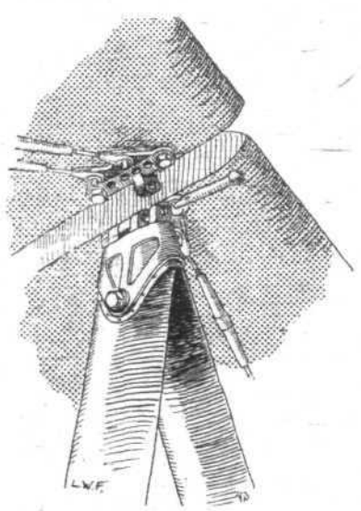
as possible, secure the standardisation of as many parts as possible, and all components are put through rigid tests prior to assembly. As will be seen, the main planes are given a slight backward slope as well as a dihedral angle, in order to give the greatest possible inherent stability without sacrificing the general efficiency of the machine. The amount of sweep-back is 2 ft., and the dihedral angle is 1 degree. The top plane, having a span of 46 ft. 6 ins., is in two sections, each section being attached to two pairs of inverted V struts mounted on the *fuselage*. The method of attachment forms the subject of one of our sketches, from which it will be seen that quick assembly and *vice versa* is greatly facilitated. It may be noted here that this fitting, together with most of the other fittings on the L.W.F. biplane, is a substantial drop forging. The lower plane, which has a span of 38 ft. 8 ins., is also in two sections, and is attached direct to the *fuselage*. The method of attachment is shown in one of the accompanying sketches.



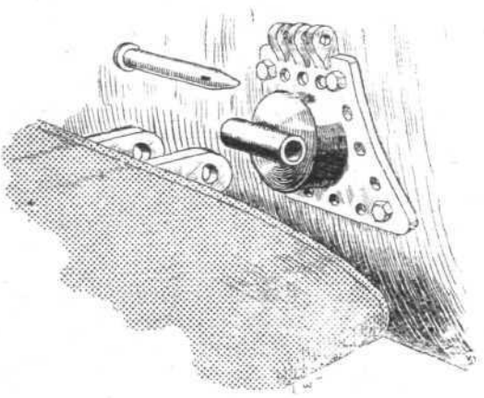
Side view of the L.W.F. tractor biplane.

This fitting consists of a plate following the curvature of the *fuselage*, to which it is attached by four bolts. Formed on the plate is a dome-shaped projection on which is formed a lug which receives the fork on the end of the wing-spar. Inside the *fuselage* is a steel compression tube connecting opposite fittings. Provision is made for the attachment of the bracing cables on both the top and bottom plane fittings.

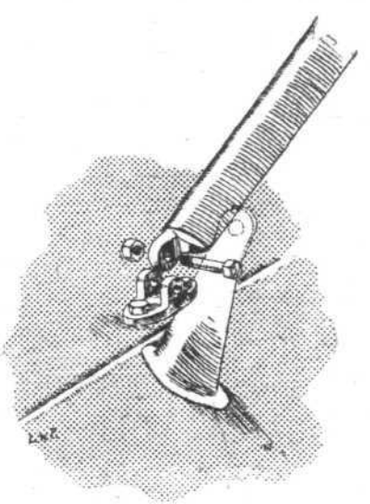
The front spar is located 9 ins. from the leading edge and 3 ft. from the rear spar. The leading edge of the wing is covered with two-ply wood on the top, extending to the front spar, in order to maintain the correct curvature. The wings are covered with a



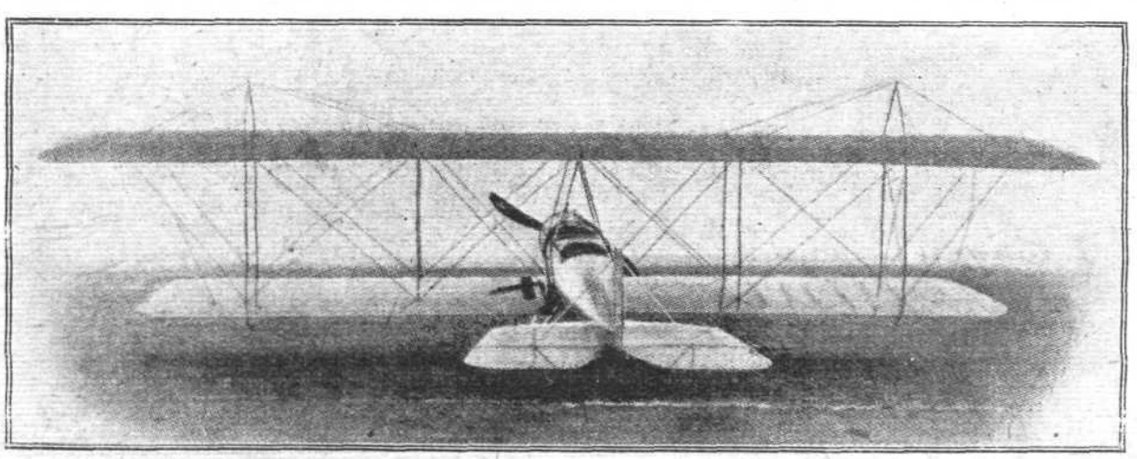
The mounting of the top plane sections to the *cabane* on the L.W.F. tractor biplane.



The attachment of the lower plane to the *fuselage* of the L.W.F. tractor biplane.



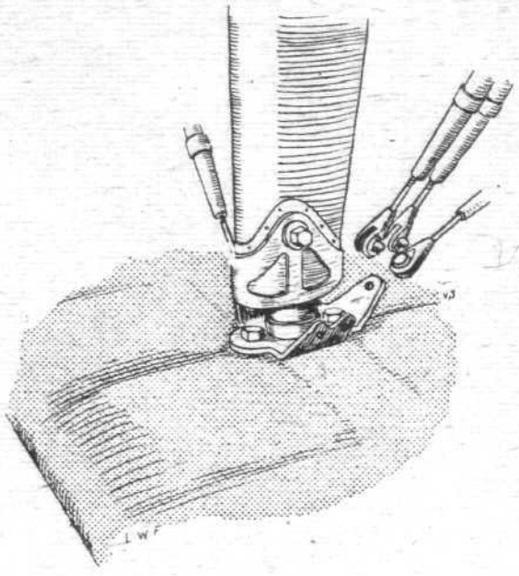
The L.W.F. Tractor Biplane.—The tail-brace fitting.



The L.W.F. tractor biplane seen from the rear.

strong fabric complying with R.A.F., specifications, laid diagonally with seams double lapped, and sewn to the ribs.

Two pairs of fabric covered stream-lined struts on each side of the *fuselage* separate top and bottom planes. The interplane strut fitting, which is illustrated by one of the accompanying sketches,



The interplane strut attachment on the L.W.F. tractor biplane.

is of the " ball-bearing " type. The ball is formed on the strut socket, and fits into a cup formed on the wing-plate. The strut can thus be adjusted for varying degrees of stagger, and when once adjusted a pin is driven through the cup and into the ball, thereby locking the whole at that particular angle. One end and the sides of the wing-plate are bent up to form attachments for the bracing cables.

The *ailerons*, which are hinged to the rear spar of the top plane, are of the double acting type, having an area of 38 sq. ft. The non-lifting double cambered stabilising plane is in two sections, one mounted by quick detachable fittings to each side of the *fuselage*. A triangular vertical stabilising surface is mounted on the top of the *fuselage* forward of the rudder, which, as with the elevators, is constructed of steel tubing. Any standard type of control, such as Farman or Dep. is fitted, or if required, the L.W.F. three-in-one.

In the *fuselage* is to be found the most interesting feature of the L.W.F. machine. It is 23 ft. 6 ins. long, 3 ft. 6 ins. deep (maximum) and 2 ft. 7½ ins. wide maximum. It is built up of three plys of wood, between each of which is a layer of silk. One ply of wood runs longitudinally, whilst the other two are laid spirally to the right and left respectively. The whole shell is then covered with a specially prepared fabric, and, in the case of hydro-aeroplane models, stitched through and through with very fine, strong wire. It is then given a final treatment of waterproof varnishes. The two cockpits are arranged in tandem, comfortably upholstered and fitted with wind screens.

The landing chassis is of the conventional two-wheel V type, but a three-wheel type, suitable for instruction work, can be fitted if required. A swivelling tail skid is also provided. Provision has been made whereby a complete water-gear may be fitted, consisting of two main floats or pontoons and a small float under the tail.

The power plant consists of either a 140 h.p. 8-cylinder model 5 Sturtevant, or a 135 h.p. Thomas. In each case the exhaust is led well away from the pilot and passenger. The radiator is mounted in the nose of the *fuselage*, in front of the engine, and is elliptical in shape

THREE YEARS OF AERIAL FIGHTING.

WORTHILY following the lead set by the misleading statistics published by the German Main Headquarters, the *Berliner Tageblatt* has collated some figures which purport to compare German and Allied losses in the three years of war.

With the warning that exact details up to the end of February, 1915, and for July, 1917, are not yet forthcoming, so that the figures for these periods are not " absolutely trustworthy," it gives the following table :—

	German.	Enemy.
1914	—	9
1915	91	131
1916	221	784
1917 (to end of July)	370	1,374

From August 1, 1914, to July 31, 1915, 72 enemy aeroplanes were shot down, of which 39 fell into German hands ; from August 1, 1915, to July 31. 1916, 455 enemy aeroplanes were shot down, of which 267 fell into German hands ; from August 1, 1916, to July 31, 1917, " about " 1,771 enemy aeroplanes were shot down, of which 776 fell into German hands. In 1915 two enemy captive balloons, so far as is known, were shot down ; in 1916, 42 ; in 1917 to August 1, 142. Three enemy airships were also shot down. Total aircraft shot down from August 1, 1914, to August 1, 1917, about 2,298 enemy and 682 German aeroplanes, 186 enemy captive balloons, and three airships.

Dealing with these figures the *Times* points out that official figures are not accessible for the purpose of checking the claims made by the Berlin journal in respect of Allied aeroplanes, but it is possible to test, both from official and unofficial sources, the accuracy of the figures given of German loses for at least some portion of the three years. For instance, the *Matin*, whose authority is at least as high on the one side as that of the *Berliner Tageblatt* is on the other, stated on January 1, 1917, that the French brought down 450 German machines in 1916 and the British 250. This figure of 700 compares with the German admission of 221. There is confirmation of this unofficial estimate in the table compiled from the statements in the official *communiqués* of British and French Headquarters which appeared in the *Times* of December 5, 1916, and which showed that, for the six months June to November in that year 666 German machines were brought, shot, or driven down by the Allies. If we take the year 1917 as it is calculated by the *Tageblatt*—August 1, 1916, to July 31, 1917—the official British and French figures show that 2,076 German machines were sent down—1,325 by the British, 751 by the French. It is not pretended that all these were destroyed, but if we take, merely for May, June, and July, those which were officially stated to have crashed, to have been destroyed, brought down in flames, shot down by gunfire, or captured, we get, instead of the *Tageblatt's* figure of 370 for the whole year, 523 for three months.

A French K.-B. Fighter.

IN a message from the French Headquarters Mr. Henry Wood, the American war correspondent, draws attention to Sergeant Boyeau who, before the war, was a prominent Rugby player and is now the " Sausage Specialist " of the French Army. Boyeau, who entered the Flying Service after two years in the trenches, attacks enemy " sausage " balloons on a plan which he worked out for himself, and has so far destroyed five of them. On the occasion of one of his successful attacks Boyeau was obliged to land in the enemy's lines owing to engine trouble. He made the necessary repairs under the fire of the German anti-aircraft guns, and then, flying at a height of not more than 400 ft., succeeded in getting back to his own lines. For this enterprise he received the *Medaille Militaire*.

FLIGHT

IDENTIFICATION OF GERMAN AEROPLANES. VII.

(COPYRIGHT.)

(*See pages* 812 *and* 813.)

IN our issue of May 24th we concluded our series of illustrations of six different German aeroplanes, namely, the Albatros Bü, the Halberstadt, the Albatros type CIII, the L.V.G., the Aviatik, and the Rumpler. A short time ago we published particulars of the Gotha twin-engine biplane, which figured so prominently in the raid on London. At the time we gave plan, front and side elevation of this machine, but as we have received a number of letters and calls from gunners and other members of the Services, thanking us for the publication of the six views of the above-mentioned machines, we have thought that a similar set of views of the Gotha might prove equally helpful for purposes of easy identification.

In producing these six views we have endeavoured to retain the uniform scale employed for the previous views in order to give a fair idea of the size of the Gotha, and although it is not possible to absolutely do all to the same scale, the difference will, we think, be found to be quite small and comparatively unimportant. By referring back and comparing the two full pages published this week with those previously published, it will at once be seen that the Gotha is of very much greater dimensions than any of the six machines previously illustrated. This fact in itself forms quite a good guide to identification, since the large machine, clearly visible as it was on the occasion at the last raid, appears at first to be an ordinary size machine much lower down. This impression is only momentary, however, since the speed gives the appearance that the machine is travelling very slowly indeed, so slowly in fact that no modern aeroplane flying at an altitude which would give it the same apparent size as the Gotha would ever travel so slowly.

The conclusion will therefore be formed at once that the machine is a large one flying at a considerably greater altitude than one would at first imagine. The next step will, therefore, be to determine whether the machine is a Gotha or some other type. This will be fairly easy. In the first place, if the machine is at all clearly visible it will in all probability be possible to distinguish the two engines on the wings, which feature alone will indicate the possibility of the machine being a Gotha. One can then begin to look for other distinctive features.

What impressed us during the last raid as being extremely useful for identification purposes were the balanced *ailerons*, projecting outward beyond the upper wing tips and having a small balanced portion pointing forward about a third of the chord. This projection was distinctly visible during the raid in July and forms, in conjunction with the slightly backswept wings, one of the most easily recognised peculiarities of the Gotha. It is true that our own Handley-Page biplanes possess a similar feature, but the two machines are quite perceptibly different in their general lines, so that to the practised observer there should never be any doubt as to which is which. If a sufficiently close view can be obtained, the tails of the two machines will form the best means of identification, that of the H.P. being a biplane tail, while the Gotha tail is of the more generally employed monoplane type with one fixed tail plane and one divided elevator.

In some of the underneath views of the Gotha published this week the gun tunnel may be just discerned, while in others it has been lost in the reproduction. In any case, interesting as this feature is in other respects, it is not of much help for identification, as it would hardly be visible at any great distance. Suffice it to point out that it exists, and that the unwary attacker is likely to be reminded of its existence if he attempt to "get under her tail" as is the practice with some other machines. The difficulty of attacking the Gotha lies in the fact that it has, practically speaking, no blind point that would prevent it from returning fire.

We should have liked to be able to publish a companion set of views of the Handley-Page for comparison, but this is not permissible, and our readers will have to be content with the six views of the Gotha. These are, we think, self-explanatory, especially as the machine was described in detail as recently as our July 12th issue.

The following are the main dimensions of the Gotha twin-engine biplane: Span of upper plane, 78 ft.; span of lower plane, 72 ft.; chord, 7 ft. 6 ins.; gap, 7 ft. 2 ins. Length O.A. 41 ft. Total horse power 520.

◈ ◈

AIR FIGHTING IN JULY.

"ACCORDING to the official *communiqués* as they have reached us, 467 aeroplanes—British, French, and German—were brought down or lost on the Western front during July," says the *Times* in its excellent summary of air fighting for the month. This is the third highest total since the war began, and compares with 392 in June, 713 in May, and 717 in April of this year.

German Main Headquarters has, however, introduced an uncertainty into the calculation. Twice during July they reported so many "enemy airmen" as having been brought down, and it is impossible to say whether the figures given, 21 and 35, represent the same number of aeroplanes or not.

Taking the figures as they are, and assuming that the 56 airmen represent as many aeroplanes, they show that 338 German machines were brought, shot, or driven down in July, and that 129 Allied aeroplanes were reported by German Main Headquarters as having shared one or other of these fates. British airmen—those of the Royal Flying Corps and the Royal Naval Air Service—and gunners have to their credit all the enemy machines except 85, which were divided between the French and Belgian services. Of the 253 accounted for by the British, 122 were brought down (that is, destroyed), 125 were driven down out of control, and six by gunfire. Five of the machines fell in our lines. The loss admitted by General Headquarters was 92—four were lost in the thunderstorm of Sunday—but, in view of Mr. Macpherson's statement in the House of Commons on July 19th, that the number of our machines lost by crashing or being shot down behind our lines is not published, it is right to say that the figure of 92 may not represent the whole of the British casualties.

Of the remaining 85 German machines, the French accounted for 76 and the Belgians nine. This is the largest number yet brought down by Belgian airmen, one of whom, Adjutant Thieffry, had the honour of achieving the first "Double event" on this particular portion of the Allied front by bringing down two German machines in the same number of minutes. French airmen destroyed 33 of the 76 enemy aeroplanes, three were brought down by gunfire, 29 were driven down in a seriously damaged condition, and 11 went spinning down out of control.

◈ ◈

FATAL ACCIDENTS.

AN inquest was held at Oxford on July 31st on Lieut. G. C. N. Cooke who was killed while flying with an R.F.C. officer. The machine suddenly nose-dived from a height of 300 ft. The pilot was seriously injured. A verdict of "Accidental Death" was returned.

While flying over Sewardstone, Essex, a wing of a machine piloted by Lieut. R. M. Denholm, suddenly collapsed and the machine dropped 600 ft. to the ground. A verdict of "Accidental Death" was returned.

Major A. J. Ross, D.S.O., R.E., the commander of an air station in the Eastern Counties was killed on August 2nd when piloting a biplane. He was accompanied by a pupil, Lieut. L. Michenci, Can. Eng., attd. R.F.C., who was also killed. The machine appears to have got into a spinning nose dive when about 300 ft. from the ground.

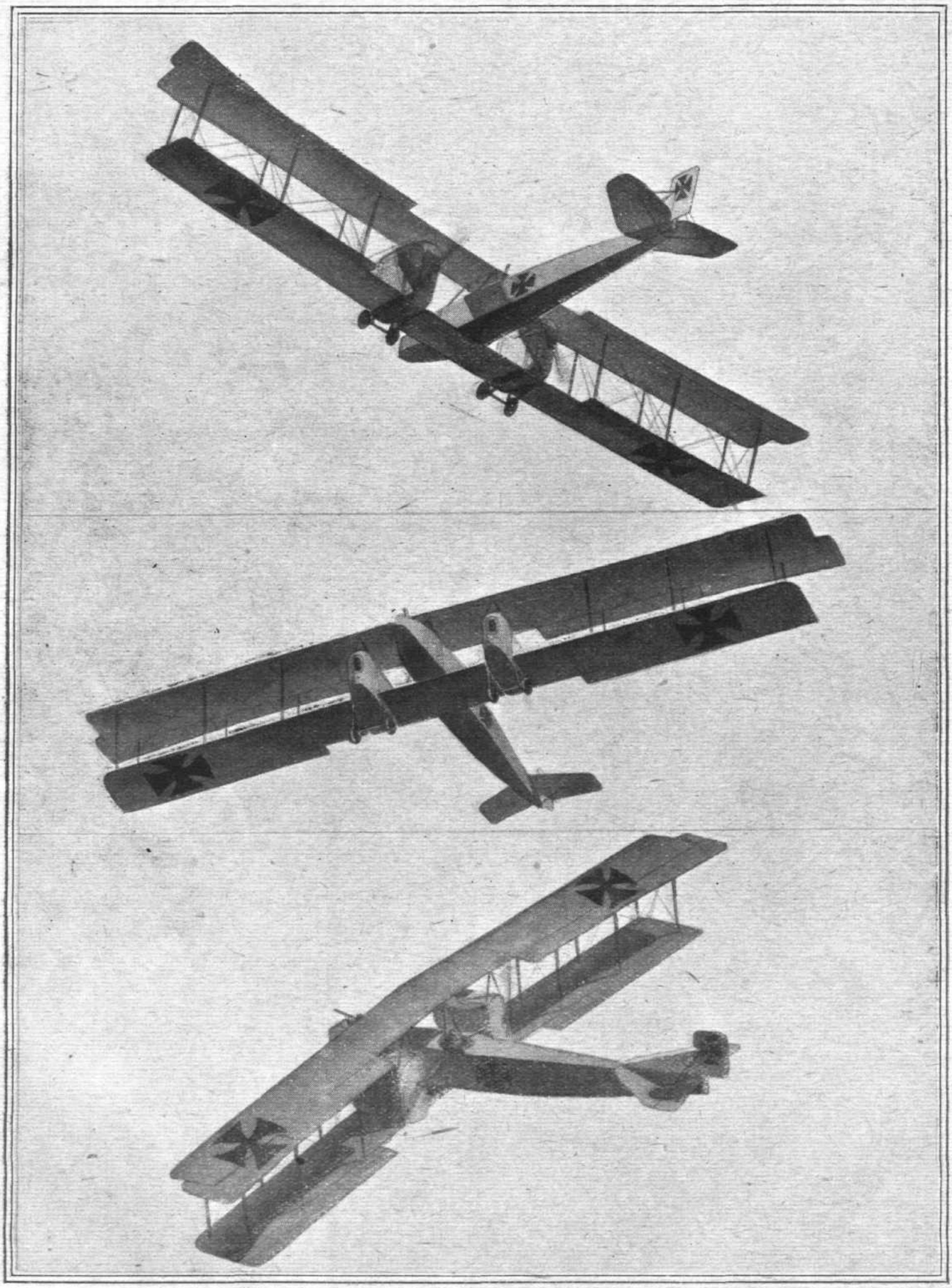
A verdict of "Death by Misadventure" was returned at an inquest on 2nd Lieut. R. L. James, Royal Welsh Fus., attd. R.F.C., who met his death whilst flying at Brooklands on August 3rd. It was stated that when at a height of 150 ft. deceased seemed to get into trouble. The machine swung to the right and then nose-dived to the earth. Other evidence was given that deceased died two hours after the accident (without having recovered consciousness), from fracture of the skull. Deceased was an expert pilot, and was learning artillery observation work.

A Double Fatality in the U.S.

CHARLES FLEISCHMANN, son of Mr. Julius Fleischmann, the multi-millionaire yeast manufacturer, and his companion, Harry Witts, were drowned on Monday while flying a hydroplane at Great South Bay (between Fire Island Beach and Long Island). Something went wrong with the engine, and the machine dived from a height of 600 ft., the aviators' bodies being driven right down into the mud and completely buried.

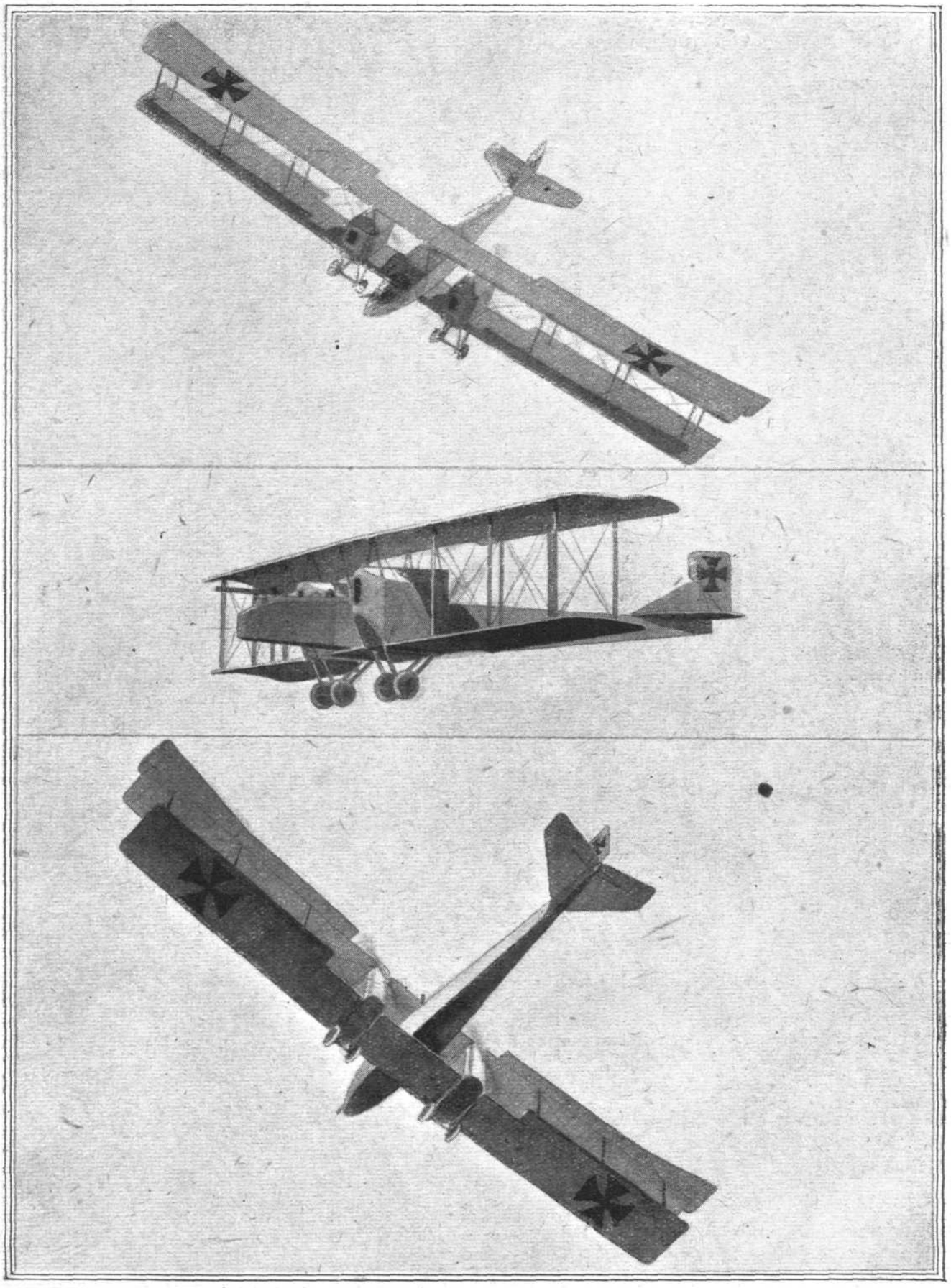
A Fatal Accident in Japan.

WHILE piloting an aeroplane at Shibaura, after a flying visit to Tokyo, Mr. Tamai was killed, through the machine falling to the ground. His passenger, a Tokyo journalist, was also killed.



The Identification of German Aeroplanes. Plate VII.

(*See also pages 811 and 813.*)



The Identification of German Aeroplanes. Plate VII.

(*See also pages* 811 *and* 812.)

THE ROLL OF HONOUR.

REPORTED by the Admiralty:—

Accidentally Killed.

Prob. Flight Officer R. M. Denholm, R.N.
F 4670 P.O. Mech. M. G. Collins.
F 15791 2nd Gr. Aircraftsman S. Lightstone.

Died of Wounds.

F 1053 1st Gr. Air-Mech. W. Allen.

Drowned.

F 6012 P.O. Mech. J. H. Tunnard.

Missing, believed Killed.

Actg. Flight-Comdr. A. J. Chadwick, R.N.
Flight Sub-Lieut. G. Roach, R.N.

Wounded.

Flight Sub-Lieut. J. H. Forman, R.N.

Slightly Injured.

Flight Sub-Lieut. P. F. T. Luckham, R.N.

Missing.

Flight Sub-Lieut. W. Allaway, R.N.
Flight Sub-Lieut. V. G. Austen, R.N.
Midshipman J. R. Barry, R.N.R.
Flight Sub-Lieut. E. V. Reid, R.N.
Flight Lieut. W. H. Richardson (Lieut., R.N.R.), R.N.

Previously reported Missing (believed Prisoner), now Officially reported Prisoner in Germany.

Flight Sub-Lieut. L. P. Paine, D.S.C., R.N.

Reported by the War Office:—

Killed.

Lieut. M. W. Briscoe, R.F.A., attd. R.F.C.
Lieut. O. L. Burt, R.F.C.
2nd Lieut. P. C. Felts, R.F.C.
2nd Lieut. J. H. Hartley, R. Muns. F., attd. R.F.C.
2nd Lieut. K. K. P. Jiddy, R.F.C.
Lieut. R. MacK. Madill, Albt. R., attd. R.F.C.
2nd Lieut. H. T. Noakes, R.F.C.
2nd Lieut. K. A. B. Norris, R.F.C.
2nd Lieut. R. R. Riggs, R.F.C.
Capt. R. N. Thomas, R.F.C.
43685 2nd Air-Mech. C. Jones, R.F.C.

Previously reported Missing, now reported Killed.

2nd Lieut. E. Byrne, Gord. Hrs. and R.F.C.
Lieut. D. M. F. Sinclair, R.F.C.

Died of Wounds.

2nd Lieut. R. C. W. Morgan, S. Wales B., attd. R.F.C.
58169 2nd Air Mech. H. F. Hall, R.F.C.
8870 1st Air Mech. A. McNicoll, R.F.C.

Died.

2nd Lieut. G. L. C. Clifton, R.F.C.
2nd Lieut. W. J. Samuels, R.F.C.

Previously Wounded, now reported Died of Wounds.

2nd Lieut. J. M. S. G. Stevens, R.F.C.

Previously reported Missing, now reported Died of Wounds whilst Prisoners in German hands.

Capt. W. G. S. Curphey, M.C., R.F.C.
2nd Lieut. C. R. Sloan, R.F.C.

Previously reported Wounded and Prisoner, now reported Died of Wounds as Prisoner in Turkish hands.

2nd Lieut. M. L. Maguire, M.C., Conn. Rang., attd. R.F.C.

Wounded.

2nd Lieut. J. R. Brown, M.C., High. L. I. and R.F.C.
2nd Lieut. A. G. Davidson, Gord. Highrs. and R.F.C.
2nd Lieut. D. S. Glover, S. Staffs. R., attd. R.F.C.
Capt. A. A. Greenslade, S. Lanc. R., attd. R.F.C.
Capt. R. W. P. Hall, R.F.A. and R.F.C.
2nd Lieut. E. G. Humphrey, S. Staff., attd. R.F.C.
2nd Lieut. F. W. Keddie, R.F.C.
2nd Lieut. C. Knowles, R.F.C.
2nd Lieut. D. Langlands, R.F.C.
2nd Lieut. S. V. R. Lewis, R.F.C.
2nd. Lieut. R. S. Macfarlane, Gord. Hsr. and R.F.C.
Lieut. F. Manley, R.F.C.
2nd Lieut. J. B. Maudsley, R.F.C.
2nd Lieut. A. Morgan, R.F.C.
2nd Lieut. J. M. O'Neill, R.F.C.
Lieut. C. W. R. Pantlin, M.C., R.F.C.
2nd Lieut. L. W. B. Parsons, R.F.C.
2nd Lieut. W. H. St. J. Perram, R.F.C.
Lieut. A. C. M. Pym, Lancers, attd. R.F.C.
Lieut. J. H. Reid, Quebec, attd. R.F.C.
2nd Lieut. E. J. Smart, R.F.C.
Capt. W. R. Snow, M.C., R.F.C.
Lieut. G. R. Spencer, Lan. Fus., attd. R.F.C.
2nd Lieut. G. B. C. Way, S. Lancs., attd. R.F.C.
2nd Lieut. G. A. Wood, R.F.C.
Capt. W. E. Young, Dorset, attd. R.F.C.

Missing.

Lieut. W. A. Bond, M.C., K.O.Y.L.I., attd. R.F.C.
2nd Lieut. S. F. Brown, R.F.C.
Capt. G. H. Cock, M.C., R.F.C.
2nd Lieut. H. N. Curtis, R.F.C.
2nd Lieut. R. H. Deakin, Ind. Inf., attd. R.F.C.
2nd Lieut. R. Hayes, R.F.C.
2nd Lieut. A. B. Hill, R.F.C.
Lieut. H. D. Japp, R.E., and R.F.C.
Capt. E. D. Messervy, Lond. R. and R.F.C.
Lieut. M. Moore, Y. and L. R., attd. R.F.C.
Capt. P. B. Prothero, A and S. Hrs., attd R.F.C.
2nd Lieut. F. W. Rook, R.F.C.
Lieut. B. H. Smith, Nova Scotia, attd. R.F.C.
2nd Lieut. W. C. Smith, R.F.C.

Previously Prisoners of War, now reported Wounded and Prisoners of War in German hands.

2nd Lieut. M.M. Kaizer, R.F.C.
2nd Lieut. B. C. Moody, London and R.F.C.

Previously reported Missing, now reported Prisoners in German hands.

2nd Lieut. L. Butler, K.O.Y.L.I. and R.F.C.
Lieut. J. V. MacGowan, Yeo. and R.F.C.
Lieut. R. M. Roberts, K.O.Y.L.I., attd. R.F.C.

A Posthumous Honour.

IN the list of awards of the Victoria Cross announced a few days ago appears the name of the second son of Flight Commander J. Dunville, R.N., and this posthumous award for a magnificently courageous act will be some consolation to the family in their great loss. The details of the deed which won this coveted honour are as follows:—

2nd Lieut. J. S. DUNVILLE, late Dragoons.—For most conspicuous bravery. When in charge of a party consisting of scouts and Royal Engineers engaged in the demolition of the enemy's wire, this officer displayed great gallantry and disregard of all personal danger. In order to ensure the absolute success of the work entrusted to him, Sec. Lieut. Dunville placed himself between a non-commissioned officer of the Royal Engineers and the enemy's fire, and, thus protected, this non-commissioned officer was enabled to complete a work of great importance. Sec. Lieut. Dunville, although severely wounded, continued to direct his men in the wire-cutting and general operations until the raid was successfully completed, thereby setting a magnificent example of courage, determination, and devotion to duty to all ranks under his command. This gallant officer has since succumbed to his wounds.

Supremacy at the Front.

IN a message on July 31st, Reuter's correspondent on the British front says the work done by the Royal Flying Corps and the Naval Air Service during the past few days is magnificent, and for the time being we have established complete supremacy of the air in the region of the offensive.

Guynemer's Half a Century.

As the successes of French airmen are most scrupulously investigated before they are credited to them, says the *Times*, it may be taken that the official announcement means that Captain Guynemer has destroyed 50 German aeroplanes. It does not at all follow that this is the total number of enemy machines that he has driven down. Guynemer's wonderful record is the work of about two years. As a Flying Sergeant he had brought down his fifth machine at the beginning of February in last year, and, in the interval, he has accounted for 45 other enemy airmen and been promoted to the rank of captain. He heads the list of victorious French airmen, and has been decorated with the Legion of Honour, the Military Medal, and the Russian Cross of St. George. He has also achieved the distinction of bringing down four of his enemies in one day.

FLIGHT

THEORY OF PRESSURE ON A PLANE SURFACE DUE TO RELATIVE WIND.

By A. E. WATSON.

IN dealing from the theoretical standpoint with what, in a general way, may be termed wind-pressure on a surface, we are concerned only with relative movement of the surface and gaseous medium under consideration. It is convenient to consider the medium, such as air, to be at rest, and the relative wind to be due to movement of the surface through the medium. In establishing an expression for the pressure, the Newtonian method of determining the change of momentum at the surface in unit time is usually adopted, the reasoning being somewhat as follows. Conceive a plane of unit area to be moving through still air of density ρ at a velocity v, all points of the surface moving parallel to a line making an angle θ with the surface. In unit time the surface sweeps out a column of air of cross-sectional area $\sin\theta$ and length v, its volume being $v \sin\theta$ and its mass $\rho v \sin\theta$. To this air is imparted a velocity $v \sin\theta$, the component of the velocity v normal to the surface. The momentum imparted is therefore $\rho v^2 \sin^2\theta$, and is a measure of the force acting on unit surface (pressure) throughout the motion. When θ is a right-angle the relative wind is normal to the surface, and $\sin^2\theta$ is unity. The above reasoning leads to an expression of the form pressure $= k \rho v^2$ when the relative wind impinges normally on the surface, the coefficient k depending on such considerations as the form and area of the surface, and being introduced to make theory fit practice.

The underlying principle of determining the force acting from the change of momentum is, of course, physically sound, but the particular application given above appears to the writer to be unsound, for reasons which we endeavour to make clear in what follows. The aim of this article is, however, not to present a cut-and-dried theory with an air of finality, but to suggest a line of thought which is at least interesting, and which, it is to be hoped, will prove fruitful.

According to the expression given above the pressure varies as the square of the velocity, but there is reason to believe that this is not strictly accurate. At low velocities the pressure appears to vary as the velocity, and at very high velocities as the cube or higher power. A possible explanation of this will be found in the development of theory given herein. When v is zero the above expression gives zero pressure. The condition $v = 0$ would correspond to the surface being at rest in still air. A theory which says that the pressure is zero under conditions in which, as a matter of fact, if we take the atmospheric pressure as 14·7 lbs. on the square inch, the pressure on a square foot is nearly one ton, is obviously unsatisfactory. To this it may be objected that the expression is only intended to give the increase of pressure due to relative wind, and that the total pressure would be obtained by adding the atmospheric pressure, so that the complete expression would be of the form pressure $= k\rho v^2 + c$ where c is the atmospheric pressure. Such procedure is, however, arbitrary and unscientific, and moreover is not justified by the physical considerations on which the expression is established. Further, such procedure does not remove a second objection, that the theory given does not enable us to calculate or account for the decrease of pressure on the back of the moving plane.

It will be seen that the "square" law set out above rests on an assumption that each and every particle or molecule of the gas has the same relative velocity with respect to the plane, that this relative velocity is determined entirely by the movement of the plane through the medium, and that when such movement ceases relative movement of necessity ceases also. In short, the gaseous medium is regarded as though its constituent molecules had no movement of their own. It should be obvious that no consistent thinker can assent to this view of the gaseous medium and at the same time assent to the kinetic theory of gases.

According to the kinetic theory the molecules of a gas (which, in an ordinary way and considered as a whole, is at rest) are individually possessed of rapid translatory movement, and the so-called static pressure exerted by the gas on any surface with which it is in contact is explained by the impacts of the gas particles against the surface. This movement decreases as the temperature of the gas falls, and is accompanied by a corresponding decrease in the pressure exerted. The movement ceases and the pressure simultaneously becomes zero when the temperature reached is that known as absolute zero. In this condition the gas would conform to the conception of the medium used above in establishing the expression for pressure due to relative wind, and the "square" law would hold good. At ordinary temperatures, however, the "molecular velocity," as the velocity of the constituent particles according to kinetic theory may be termed, is, in the case of air at atmospheric pressure, of the order of a thousand miles or more an hour, which is by no means negligible. If, then, the molecular velocity of kinetic theory has any counterpart in fact, such molecular velocity must be taken into account in any theory of pressure due to relative wind which has any pretence to completeness. In short, such theory must be based on the relative movement of individual particles (or of streams of such particles as have the same relative movement) with respect to the plane, as determined by compounding the velocity v of the plane with the molecular velocity V of such particles or streams. At first thought it might be concluded hastily that such treatment of the problem belongs to the realm of impossibility. As a matter of fact, on the assumptions made in developing accepted kinetic theory, the treatment is comparatively simple. In establishing an expression for the static pressure exerted by a gas on a surface in contact therewith, assumptions are made which, in effect, amount to assuming that the surface is bombarded equally from all possible directions by streams of gas particles, the streams having the same density (d, say) and velocity V. Thus, if AB (Fig. 1) represents a plane, and we confine our attention to a small element of area approximating in magnitude to a point C, the streams may be represented, as regards velocity and direction, by the radii of a sphere DEF having its centre at C, the radii being regarded as directed towards the centre. As we are here concerned with a relative movement determined entirely by the molecular velocity V, the Newtonian method given above is applicable, and the pressure on the element of area at C due to any stream represented, for instance, by GC, is given by the expression $dV^2 \sin^2\theta$, where

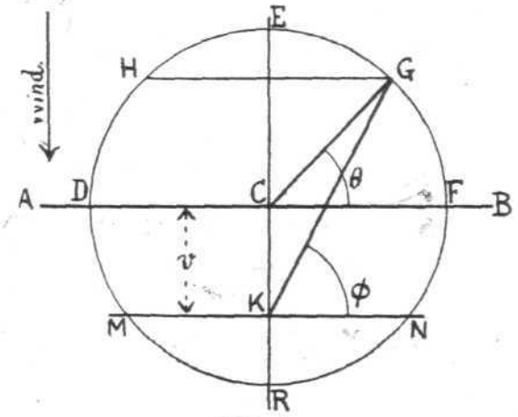


Fig. 1.

θ is the angle GCF. The total pressure on the element of area is the sum of the pressures due to the individual streams. If we distinguish the inclinations of these streams by subscripts 1, 2, 3, &c., the total pressure p is given by

$$p = dV^2 (\sin^2\theta_1 + \sin^2\theta_2 + \sin^2\theta_3 \ldots . \&c.) \qquad (1)$$

If there are n streams, there will be n terms within the brackets, and we may write the above expression in the form

$$p = ndV^2 \left(\frac{\sin^2\theta_1 + \sin^2\theta_2 + \ldots . \text{ to } n \text{ terms}}{n} \right) \qquad (2)$$

The expression within brackets is the mean value of $\sin^2\theta$ for all the streams, and nd is the total density of all the streams, and is therefore equal to ρ, the density of the gas. To find the mean value of $\sin^2\theta$ for all possible radii uniformly distributed throughout the hemisphere, it is convenient to associate mentally the distribution of the radii with the distribution of their outer extremities over the hemispherical surface. These extremities will be uniformly distributed, and the mean value of $\sin^2\theta$ is then obtained from the expression

$$\frac{1}{A} \int \sin^2\theta \, dA \qquad (3)$$

where A is the area of the surface over which the integration is performed, and dA is an element of that surface. In the present case A is the area of the hemispherical surface, given by $2\pi V^2$ (since V is the radius of the sphere of reference).

We may take for the element dA a zone GH for all points on which θ has the same value. The length of this zone is $2\pi V \cos\theta$, and its width $V\,d\theta$, so that $dA = 2\pi V^2 \cos\theta .\, d\theta$. The limits of θ are $\frac{\pi}{2}$ and o, so that (3) becomes

$$\int_{\theta}^{\frac{\pi}{2}} \sin^2\theta .\cos\theta .\, d\theta = \left[\frac{\sin^3\theta}{3}\right]_{0}^{\frac{\pi}{2}} = \frac{1}{3}$$

The pressure of the gas is therefore given by $p = \rho\frac{V^2}{3}$, which is the usually accepted value.

In spite of the apparently straightforward character of the reasoning establishing the expression $dV^2\sin^2\theta$ for the pressure of the individual stream, the writer has grounds (which we need not here examine) for believing that the reasoning is unsound physically, and that the correct expression is $dV^2 \sin\theta$. With this view, the pressure of the gas depends on the mean value of $\sin\theta$, given by

$$\int_{0}^{\frac{\pi}{2}} \sin\theta .\cos\theta .\, d\theta = \left[\frac{\sin^2\theta}{2}\right]_{0}^{\frac{\pi}{2}} = \frac{1}{2},$$

so that $p = \rho\frac{V^2}{2}$.

If the constituent streams were of the same density d, but their velocities different, the pressure would be given by the expression

$$p = \rho\left(\frac{(V_1^2\sin^2\theta_1 + V_2^2\sin^2\theta_2, \text{ \&c., to } n \text{ terms})}{n}\right) \qquad (4)$$

in one case, or by

$$p = \rho\left(\frac{(V_1^2\sin\theta_1 + V_2^2\sin\theta_2, \text{ \&c., to } n \text{ terms})}{n}\right) \qquad (5)$$

in the other, where V_1, V_2, &c., are the velocities of the streams inclined at angles θ_1, θ_2, &c., respectively.

According to accepted theory, the velocity of sound (V_s) in a gas is given by

$$V_s = \sqrt{\frac{\gamma p}{\rho}} \qquad (6)$$

where γ is the ratio of specific heats, p the pressure, and ρ the density of the gas. For a gas for which $p = \rho\frac{V^2}{3}$ it can be shown that $\gamma = 1\frac{2}{3}$. Substituting these values in (6) we get

$$V_s = \sqrt{\frac{5V^2}{9}} = \cdot 74\ V \text{ approximately,}$$

or

$$V = 1\cdot 34\ V_s \text{ approximately.}$$

On the other hand, when $p = \rho\frac{V^2}{2}$ we find that $\gamma = 2$, and substituting these values we get $V_s = V$, or the velocity of sound and the molecular velocity are identical. This is in agreement with what we should expect from the consideration that if we slightly disturb the molecular velocity as by a vibrating string in producing a sound, the disturbance should be propagated with a velocity tending to a minimum agreeing with the molecular velocity of the particles, which serve as carriers. It is difficult to see any clear reason why, in a gas having a constitution such as is contemplated in the foregoing theory, the disturbance should be propagated with a velocity some 25 per cent. less than that of the gas particles. We state thus much merely to show that the alternative expression (5) is not entirely irrational, and, for what it may be worth in the absence of exhaustive discussion, will give below the alternative development somewhat briefly after developing the orthodox view more fully.

It will be convenient first to draw attention to a distinction usually made between elastic and inelastic impacts. If a mass m impacts against a plane surface with a velocity component v normal to the surface, the normal component is destroyed when the impact is inelastic, the change of momentum being mv. If the impact, however, is perfectly elastic, the mass rebounds with a normal component v, the change of momentum being $2mv$. If the periods of contact are the same in the two cases, the average force exerted during the elastic impact is twice the force exerted during the inelastic impact. Applying this reasoning to the impact of gas particles, it is sometimes stated that the pressure for inelastic impacts is given by ρV^2 and for elastic impacts by $2\rho V^2$. It should be noted that this is only true when ρ stands for the density of the incident stream. When ρ stands for the density of the gas in the immediate vicinity of the plane, the pressure is given by ρV^2 in both cases, for when the impacts are inelastic there are no reflected streams present, and ρ is the density of the incident stream. When the impacts are elastic, reflected streams are present. As a reflected stream is merely an incident stream at a later period in its history, the incident and reflected streams have, of necessity, the same density. In this case, therefore, the density of the incident stream is $\frac{\rho}{2}$, yielding ρV^2 as the expression for pressure. In the present paper the elastic impact view is taken. Thus, considering the pressure on the upper surface of the element at C (Fig. 1), we may associate the velocity and direction of incident streams with the radii of the hemisphere DEF, and of the reflected streams with the hemisphere DRF. When dealing with the lower surface of the element at C, these associations would, of course, be reversed.

Now, assuming the plane AB to move with a velocity v in the direction CE, the result would be equivalent to imposing on any stream GC a corresponding velocity with respect to the plane in the direction EC. If we make CK $= v$, and join GK, GK gives, as regards magnitude and direction, the resultant velocity of the stream with respect to the plane. Similarly the resultant velocities of other streams are given by joining the corresponding points on the spherical surface to the point K. The surface is therefore bombarded now by streams parallel to these resultants. Confining our attention as before to a small element of surface, we may consider the plane as occupying the position MKN with respect to the sphere of reference, and regard K as the element in question. Now when the plane moves with a velocity v it will clearly overtake those reflected streams which, when the plane was at rest, were moving away with normal velocity components (V sin θ) less than v. These streams correspond to the radii terminating on the zone DMNF. There will be a corresponding increase in the number of impacts in unit time which will be equivalent to an increase in the effective density of the incident streams in the ratio

$$\frac{\text{surface MEN}}{\text{surface DEF}} = \frac{V + v}{V}.$$

As reflected streams are automatically produced corresponding to the incident streams, it follows that there will be an increase in the actual density of the gas in the immediate vicinity of the surface. This reasoning leads to the interesting result that the density of the gas in the immediate vicinity of the front surface of the moving plane increases in the ratio $\frac{V + v}{V}$, and the limit is reached when $v = V$ so that the density is doubled. All the streams, both incident and reflected, originally present when the plane was at rest are now incident, and there can be no further increase in density, no matter how much higher we make the velocity v.

It will be seen by comparison with (4) above that the pressure on the element K will be found by finding the mean value of $a^2\sin^2\phi$ over the surface MEN and applying this mean value to gas of density $\frac{\rho(V + v)}{V}$. where a is the resultant velocity GK for any stream and ϕ the corresponding angle of inclination GKN. Thus

$$p = \rho .\frac{(V + v)}{V} .\frac{1}{A}\int a^2\sin^2\phi .\, dA. \qquad (7)$$

Taking, as before, for the element dA the zone GH for all points on which $a^2\sin^2\phi$ has the same value, we have

$$dA = 2\pi V^2\cos\theta .\, d\theta$$

and

$$A = 2\pi V^2 .\left(\frac{V + v}{V}\right).$$

Substituting in (7) we get

$$p = \rho\int a^2\sin^2\phi\cos\theta .\, d\theta \qquad (8)$$

the integration being performed between limits corresponding to the surface MEN.

(To be concluded.)

Long-Distance Flying in Japan.

ON June 11th, Lieuts. Takikawa, Watanabe, Matsuoka, of the Japanese Flying Corps, flew from Tokorozawa to the new military aerodrome at Kagamigahara. They started at intervals between 12.26 and 12.40, and all three had reached their destination, 250 miles away, by 5.45; the first arriving at 4.48 p.m.

FLIGHT

IN THE HANDS OF THE ENEMY.

IN our last issue we published a list of British machines claimed by the Germans to have fallen in their lines during the month of June. Similar details have since come to hand of lists published in the *Norddeutsche Allgemeine Zeitung*, relating to the months of April and May. The list for March was given in our issue of May 10th. The list for April is :—

Twenty-five Sopwiths. Two-seaters.

No. A 2401 : Serg. Dunne, Lieut. Warrens ; one occupant killed, the other prisoner.
No. A 1073 : Pilot prisoner ; observer killed.
No. A 3421 : Lieut. A. G. Pepper, prisoner ; Lieut. W. L. Day, killed.
No. 7675 : Both occupants killed.
No. 7544 fixed engine : Both occupants killed.
No. unknown : Lieut. Wordsworth ; both occupants killed.
No. 7806 : Both occupants killed.
No. unknown : Lieut. Heagerty, wounded ; Lieut. Health-Cantle, killed.
No. 5117 : 2nd Lieut. Harold Edwards, prisoner ; Gunner Coghlan, killed.
No. 5171 : Lieut.-Col. Bathborne, prisoner unwounded ; Gunner Turner, killed.
No. A 3323 : Pilot wounded ; Observer killed.
No. A 1089 : 2nd Lieut. Newenhem, 2nd Lieut. A. E. Crisp, prisoners ; former slightly wounded.
No. A 9934 : Lieut. Cliford Reece, Serg. Wil. Moult, prisoners ; the latter wounded.

In the case of three of the Sopwith two-seaters, the number of the machines and the names of the occupants were not decipherable.

Single-seaters.

Motor : Mercédes : 2nd Lieut. Fasker, prisoner.
No. 22 Type II. : Occupant prisoner.
No. A 6690 : Lieut. Roche, prisoner unwounded.
No. 3.6175 : Lieut. Capon, prisoner, slightly wounded.
No. A 6172 : Captain Mack, prisoner ; severely wounded.
No. 6160 : 2nd Lieut. Bennet, killed.
No. 6175 : Lieut. Malone, 3rd Squadron, killed.

In the case of one Sopwith single-seater the number of the machine and the name of the pilot were not decipherable.

Triplane.

No. 5448 : Lieut. Weil, killed.

Twenty-four Nieuports. Two-seaters.

Rotary engine : 2nd Lieuts. Vaughan and Williams, both killed.
No. A 6667 : 2nd Lieut. Luscen and H. Pell, both killed.
No. N 6775 : Lieuts. James and Melor, both killed.
No. 9667 : Lieut. George Fleming, prisoner, wounded ; Pilot Lockyer, killed.
No. 6671 : Lieuts. Burbury and Worne, prisoners, wounded.

Single-seaters.

No. 6674 : Lieut. Sheape, 40th Squadron, prisoner.
No. A 6693 : Pilot severely wounded.
No. A 6692 : 2nd Lieut. Jennings.
No. 4635 : Pilot prisoner.
No. 2865 : Pilot killed.
No. A 6605 : Lieut. Rob. Bevington, prisoner, wounded.
No. A 6796 : Lieut. W. O. Russell, prisoner.
No. B 1511 : Pilot killed.
No. 6772 : Capt. Alan Binnie, severely wounded.
No. 2946 : Pilot killed.
No. 3382 : Name of pilot unknown.
No. A 313 : Lieut. A. Walter Wood, prisoner, slightly wounded.
No. 3192 : Pilot prisoner, wounded.
Rotary engine : A. H. Hervey.

In the case of five Nieuport single-seaters the number of the machine and the name of the pilot were undecipherable.

Thirteen Bristols.

No. 7236 : Pilot killed ; Observer severely wounded.
No. A 3340 : Lieut. N. Nickler, severely wounded, and Lieut. George.
Motor, Rolls-Royce, No. 10,426 : Lieut. Adams and Lieut. Steward, both wounded.
No. A 3320 : Lieut. H. A. Booker, severely wounded, and Alan Bolcheon, slightly wounded.
No. unknown : Capt. Robinson, prisoner ; and Lieut. Warberton.
No. A 3323 : Lieut. Brockhurst and Lieut. Broughton.
No. A 3338 : Capt. A. Tidmarsh and Lieut. Hollond, both prisoners.
No. 9625 : Both occupants killed.
No. 3199 : Watson and Law, wounded.
No. 3322 : 2nd Lieut. Worshey, 2nd Lieut. Davis, prisoners, unwounded.
No. 7195 : 1st Lieut. Hicks, prisoner.
No. A 2937 : Occupants killed.
Belgian No. 17 : Lieut. Jules Callant, Adjutant Armand Glibert, both killed.

Four Spads.

No. A 6681 : Pilot killed.
No. 6753 : Lieut. W. L. Hamilton, prisoner.
No. B 1562 : D. L. D. Davidson.
No. 6682 : 2nd Lieut. Craig, prisoner.

Twenty-seven F.Es.

No. 4954 : Sub-Officer Wilson, Gunner Hadlow, prisoners.
No. 5841 : Lieut. Powell, 13th Squadron, 12th Wing ; other occupant killed.
No. A 5151 : Capt. Tomlinson, slightly wounded ; Lieut. Lenison, severely wounded.
No. A 6382 : Lieut. O'Beirne, killed ; Lieut. Macdonald.
No. A 6371 : Lieut. Richards, killed ; Lieut. Dodson, prisoner.
No. A 808 : Lieut. Musters, 2nd Lieut. Brandon, both killed.
No. 805 : 2nd Lieut. Hinginbottom, severely wounded ; Afflach, killed.
No. 7714 : Lieut. Anley, slightly wounded ; Mechanic Barnes.
No. A 21 : 1st Lieut. Birech and Bongshield, both taken prisoners.
No. A 22 : Capt. Shyber, N.G.
No. A 652 : Pilot Schreiber, Observer M. Lewis, both taken prisoners.
No. A 6 : Lieut. Hamilton, Gunner Snelling, both wounded.
? : Lieut. Buttler, Mechanic Robert David, prisoners.
No. A 813 : Lieut. Callum, Lieut. Bell, both prisoners unwounded.
No. 5969 : 'Shun and C. A. R., both killed.
No. 4984 : Pilot and Observer, prisoners, the former severely wounded ; the latter unwounded.
Fixed motor 3759 : Lieut. M. A. Wood, Steward Thomas, both burnt to death.
No. 1564 : M. Thopam, both occupants killed.
Motor No. 3577 : Lieut. George, Lieut. Bailly Hodson, both killed.
No. A 784 : Both occupants prisoners.
No. 6385 : Lieut. H. R. Nikolsen, Cadet J. R. Johnston, both killed.
No. 4883 : Both occupants prisoners.
No. A 825 : Names of occupants unknown.
No. A. 6355 : Lieut. Hondley and Lieut. Percival, both occupants prisoners.

In the case of three F.E. biplanes the numbers and the names of the occupants were undecipherable.

Thirty-five B.Es.

No. B.B. 7061 : Names of occupants unknown.
No. A 2815 : Davidson, killed.
No. A 2140 : 1st Lieut. Henry, Lieut. Logan.
No. A. 2141 : Lieut. White, B. W. ; Lieut. Evans, Bernhard ; both killed.
No. A 3330 : The Observer severely wounded ; the pilot killed.
No. 5849 : Lieut. F. L. Kitchen, 4th Squadron, killed.
No. 2769 : F. Mathews, slightly wounded.
No. unknown : W. Y. Chalk.
No. A 78 : 2nd Lieut. Davies ; 2nd Lieut. Samuel ; both taken prisoners.
No. 2562 : Lieut. Comb ; one occupant killed, other severely wounded.
No. 2553 : Sergeant John Field Danger, Mechanic E. D. Harvey, prisoners.
No. 3213 : Lieut. E. G. Dilmitt, Sergt. S. Smith Fieldhouse ; both occupants prisoners.
No. 19683 : Occupants burnt to death.
No. N.R. 1268 : Occupants killed.
Austin motor, No. 2203 : Lieut. Granes, burnt to death.
No. 5870 : Pilot severely wounded ; Observer unwounded ; both prisoners.
Motor No. 7177 : Lieut. Radcliffe, killed.
No. 2713 : Both occupants burnt to death.
No. 3681 : Lieut. Statesman, prisoner.
No. unknown : Lieut. Follit, killed ; F. D; Kirkham, slightly wounded.
No. 2949 : Captain Allan, killed ; Lieut. Mactavish, wounded and prisoner.
No. A 2916 : Both occupants killed.

In thirteen B.E. aeroplanes the number of the aeroplane and the name of the occupants were undecipherable.

Eleven Vickers.

No. 4997 : Lieut. Bates and Barnes, both killed.
Motor, Rolls-Royce, No. 3/250/59 : Lieut. Sworder, killed, and Lieut. Menghirth.
No. A 4/1959 : 1st Lieut. Barrell, prisoner ; other occupant severely wounded.
No. 5150 : Occupants of the 57th Squadron, killed.
No. A 19 : Sergt. Attwater and Lieut. Davis, both slightly wounded.
No. 6391 : 2nd Lieut. Khondhzon, 2nd Lieut. Burns, 20th Squadron, prisoners, unwounded.
No. A 6352 : John Lingard and Edward R. Jennings, both prisoners.

In the case of four Vickers the numbers and the names of the occupants were undecipherable.

One R.E. 8 (?) : Occupants prisoners.
One Martinsyde single seater, No. G. 100 : Lieut. J. B. Lasher, prisoner, unwounded.

Unnamed.

Also two tractor biplanes. Their numbers and the names of the occupants were undecipherable.
One tractor biplane, No. A 2592 : Lieut. Ross, severely wounded.
One triplane, No. 5457 : 2nd Lieut., prisoner.
Two triplanes : Their numbers and the names of the occupants were undecipherable.
One "Zanzibar" VII. : No. 7714 : Occupants unknown.

The following is the list for May :—

Thirty-seven Sopwiths. Two-seaters.

No. B 1597 : Occupants unknown.
No. A 8252 : Lieut. O'Brien and Lieut. Edwards, both prisoners.
Motor, Clerget No. 1259 : J. L. Pischott, wounded ; F. H. Adams, killed.
No. 7803 : Lieut. Nills, killed ; Gunner Lengblan, wounded.
No. 3552 : Lieut. F. H. Woolliam and Lieut. J. B. Harvey, both prisoners.
No. 3A 963 : 2nd Lieut. Johnstone, wounded ; 2nd Lieut. Thomas Snipson Millar, prisoner.
No. A 8226 : Allan S. Carey and William Arthur Laidranck, killed.

In the case of one Sopwith two-seater the number and the names of the occupants were undecipherable.

Single-seaters.

No. N 6186 : Lieut. Arthur Stuart Nather, prisoner, unwounded.
No. R.W. 72 : H. S. Morton, prisoner, unwounded.
No. unknown : Lieut. R. M. Musters, unknown.
No. 6174 : Lieut. Hadrill, prisoner, unwounded.
No. A 7303 : Lieut. D. T. Sheehan, killed.
No. A 6178 : Lieut. H. Thomas Wicket, severely wounded.
No. N 6464 : Lieut. J. Bampfylde, prisoner, unwounded.
Motor, Gnome-Le Rhone, No. 100221 : Sergeant, name unknown, killed.
No. A 6776 : Lieut. Gilchrist.
Motor, Le Rhone, No. 7980 : Pilot killed.
No. B 1721 : Lieut. F. N. Kantel, prisoner.
Motor, Le Rhone, No. 100235 : Lieut. R. M. Roberts, prisoner.
Motor, Le Rhone, No. 2764 : 2nd Lieut. Sutherland, prisoner.
No. A 6158 : N.C.O. Walker, prisoner, unwounded.
No. A 6186 : Name unknown.
No. A 6194 : Capt. Lucas Smith, wounded.
No. unknown : Lieut. Hains, killed.
No. A2 8902 : Lieut. Toogood, wounded.
No. A 6186 : Lieut. Charles Smith, prisoner.

In the case of two single-seaters the numbers of the machines and the names of the occupants were undecipherable.

Triplane Two-seater.

No. 7419 : Sergt. Walter Bond, Lieut. T. Welby, both killed.

Triplane Single-seaters.

No. 5474 : Lieut. Roach, killed.
Motor, Hispano-Suiza, No. 10046 : Capt. Ball, killed.
No. A 973 : Pilot killed.
Motor, Clerget, No. 386 : Pilot killed.
No. N 5450 : Smith killed.
Motor, Clerget, No. 1597 : Occupant unknown.
Motor, No. 2779 : Occupant unknown.

Ten Nieuports. Single-seaters.

No. B 1514 : Pilot prisoner.
No. A 6665 : Sergt. Henri Dunb, prisoner.
No. A 6644 : 2nd Lieut. S. H. Lines, prisoner, unwounded.
No. 2942 : Lieut. Raymund, prisoner.
No. 3761 : Lieut. Cole, killed.
No. A 6678 : Lieut. R. J. Anthony, killed.
Motor, Le Rhone, No. 6284 : Lieut. Mackintosh, prisoner.
No. A 4 : Lieut. Robertson, taken prisoner.

In the case of two Nieuport biplanes, numbers and names of occupants were undecipherable.

Five Spads. Two-seaters.

N.B., No. 1588 : Lieut. John Duncan and Lieut. Vernon Holmes, both prisoners.
No. B. 1627 : 2nd Lieut. Stanley Franck and Allobarton, both prisoners, unwounded.

Single-seaters.

No. 5280 : 1st Lieut. Cecil Ernst French, prisoner, unwounded.

In the case of two Spad single-seaters the numbers and names of pilots were undecipherable.

Fifteen F.Es. Two-seaters.

No. unknown : Lieut. G. French and Lieut. Hording.
No. A. 5149 : 1st Lieut. Arthur W. Martins, Gunner Blakes, both prisoners.
No. unknown : M. Kaiser, wounded.
No. unknown : Lieut. Lee and Gunner Boomeister, both prisoners.
No. 5 : Occupants killed.
No. A 6446 : Lieut. E. James Grout and Alex. R. Tyrell, prisoners.
No. A 6447 : Lieut. B. C. Moody, 2nd Lieut. F. D. Blakall, slightly wounded.
No. 5511 : Lieut. Thomas Hudson and Capt. L. M. Horncastle, both killed.
No. 9524 : Lieut. Johns, severely wounded ; and Sergt. Alfred, killed.
No. unknown : Lieut. F. W. Evans, and Lieut. Masson, both killed.
No. A 7374 : Lieut. Holman, severely wounded ; second occupant killed.
No. A 6378 : Occupants unknown.
No. A 32 : Occupants unknown.

In the case of one F.E. biplane, number and names of occupants were undecipherable.

Single-seater.

No. 2622 : Pilot severely wounded.

One R.E. Two-seater.

Lieut. Ernest Moore and Lieut. William Winkler.

Two S.Es.

No. 734 : Lieut. Hume, prisoner.
No. A 8905 : Lieut. Edgar A. Lloyd, wounded.

Six B.Es. Two-seaters.

No. 4968 : Occupants killed.
No. A 2801 : Occupants killed.
Motor, Rolls-Royce, No. 3243 : Lieut. Brisel and Sergt. Adam, killed.
No. 3474 : Lieut. Osborne and Sergt. Lewis, prisoners.
Motor, Rolls-Royce, No. 4260–146 : Lieut. Rozer Palmer Percy and Lieut. Edward Seffery Roland, killed.

In the case of one B.E. machine the number and names of occupants were undecipherable.

Two Bristols. Single-seaters.

No. B 5/2515 : Pilot killed.
Motor, Hispano-Suiza, No. 10020 : Lieut. G. B. Daniell, prisoner, unwounded.

Five Vickers. Two-seaters.

Motor, Rolls-Royce : 2nd Lieut. Bacon, wounded ; Lieut. Committio, killed.
No. A. 3608 : Lieut. Harold Kirby and Lieut. Thomas Wade, prisoners.
No. A 6410 : Occupants unknown.

Single-seaters.

No. 7622 : Lieut. Fraser, prisoner, unwounded.
No. 4873 : Capt. S. F. Browning, killed.

One Farman.

Motor, Beardmore, No. 4425 : Occupants unknown.

One de Havilland Scout.

J. H. H. H. Godall, prisoner, unwounded.

Unnamed machines.

No. A. 7416 : (tractor biplane) 2nd Lieut. Beavanto Pill and 2nd Lieut. G. S. Stroboyde, both killed.
Motor, Beardmore, No. 1411 : Mechanic Echens ; the second occupant unknown ; both killed.

The numbers of two others and the names of their occupants were undecipherable.

German Naval Aircraft Scouts.

FROM Vlieland the *Telegraaf* learns that warships and aeroplanes, and later a Zeppelin, were seen before the coast on July 25th. The Zeppelin was fired on and disappeared behind the clouds.

Airisms From The Four Winds

What haphazard methods appear to exist with the War Office in regard to the notification of matters official, including the bestowal of honours upon our fighting brethren. Naturally every mother's son out at the Front sees regularly the *London Gazette* (price 1s.)—published daily just now—and so each man ought at once to know should some distinction be allotted to him. All the same, it would appear to most ordinary men that it might be courteous, without even a suspicion of labouring it, if each honoured soldier were also automatically notified that he has been awarded the V.C. or the D.S.O. or D.C.M. or what not, and not left just to hear of it by chance. Continually we come up against cases of this sort, in which the only intimation the recipient of honours receives is through the pages of "Flight." Labour is at a premium, we know, but a Cuthbert or two, or ever so mediæval a dug-out or so could, without very much waste, be put on the job to fill in forms of advice.

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The following is the immediate cause of this protest on our part :—

"Somewhere in France,
"13th July, 1917.

"Sir,—In a recent issue of 'Flight' about week ending June 16th or 23rd, my name appeared amongst the list of honours as having been awarded the D.C.M. Up to the time of writing I have received no official notification of same, and I am wondering if any mistake has been made. Would it be asking too much for any particulars of same, or source of your information? My full address, &c, is No. —, ——, Royal Flying Corps, attached —th Brigade, R.H.A., —th Cavalry Division, B.E.F., France.

"Thanking you in anticipation,
"Yours faithfully,
"————."

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"Art and Flight, the Quaint Theory of an Aviator Artist," is the text of an interesting article in *Drawing and Design* for July, by Clarence Winchester, of flying and Hendon Aerodrome fame. In several respects the title is well maintained in the expounding of the author's views upon Art and the influence which is likely to follow upon the conquest of the air, the gist of Mr. Winchester's views being contained in the following extracts :—

"It may sound a curious theory, that of maintaining the regeneration of Art through flight. But we are living in a curious time, and curious theories are justified. Aerial navigation has provided us with new spectacles with which to view nature, and those artists who present nature, as she is seen through these new glasses must themselves look with modern eyes.

"The futurist should be in his seventh heaven in his emanation from the earth-bound creature to the fleeting pilot who sees nature from an entirely modern aspect. The presentation of nature as seen from above has always struck me as being the very essence of futurism, cubism and every other 'ism.' England viewed from the air is a perfect model of an unintelligible picture. It is a splendid original for any cubist to work upon. Tiny fields, hexagonal, octagonal, pentagonal, and triangular, are fitted into each other and form a veritable maze. This country in particular is the very quintessence of future futurism, and I have no doubt that if Mr. Nevinson devoted part of his time to flying the value of his artistic efforts would rise considerably. None but the artist can realise this. . . .That flight must eventually influence art to a very great extent can hardly be denied (it has already done so in some degree), and those artists who present nature as others see it and those who present nature as nobody sees it, will come very near to agreeing upon a definite standard of aerial art when aerial locomotion becomes so general that anything but a bird's-eye view of nature must be unusual, uncommon and almost prehistoric."

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"Don't forget the London Air Raids," was the battle cry of a battalion of the Fusiliers in France as they went over the top in a successful push.

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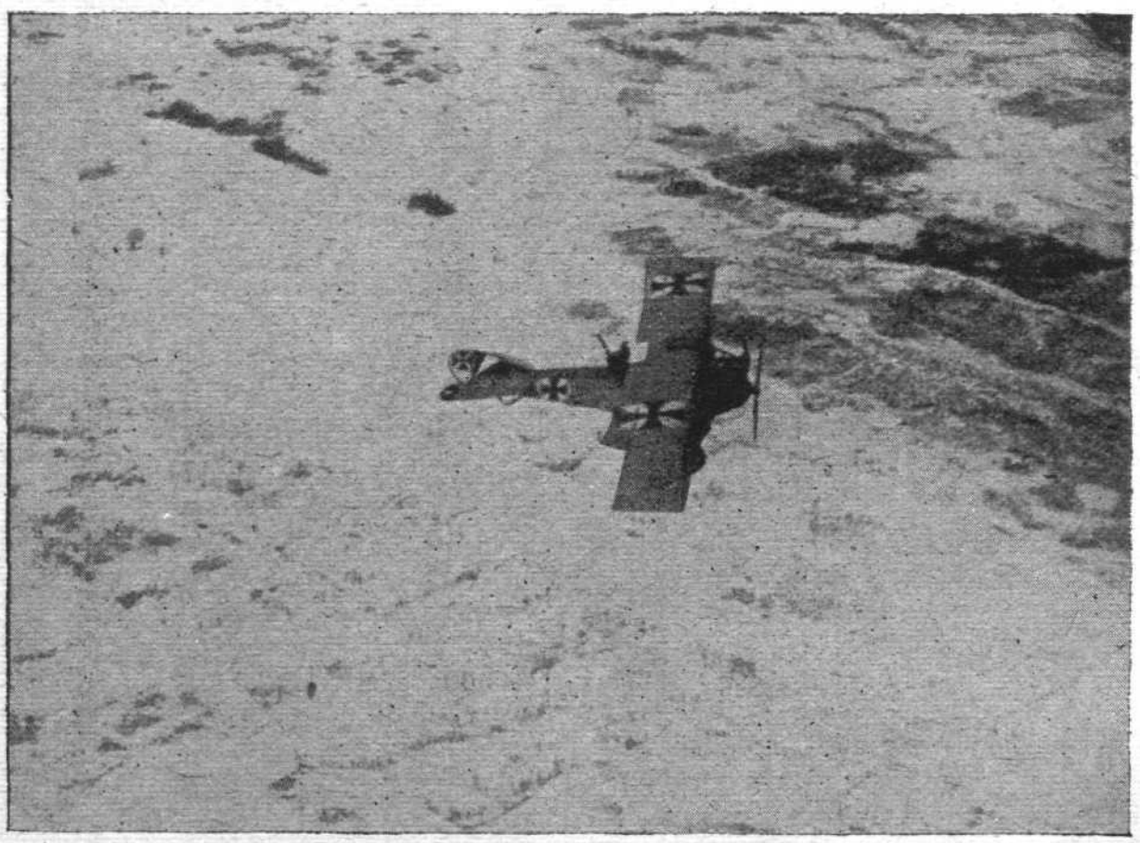
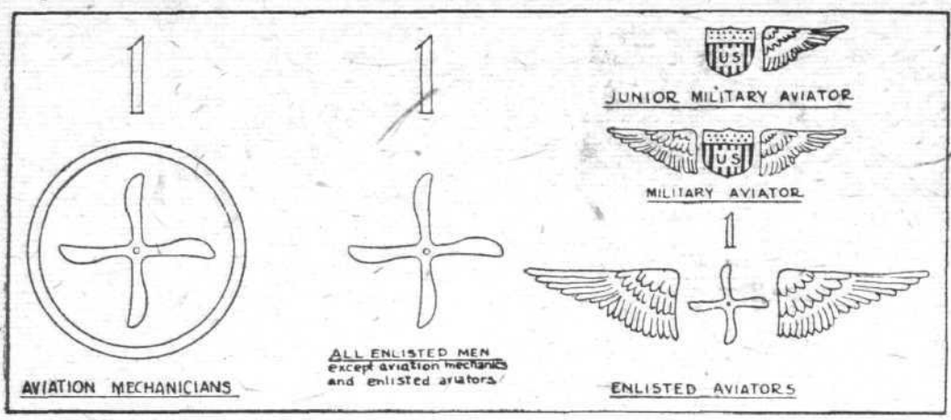
It is a delightful inspiration, the idea of the Detroit citizens who are planning to "adopt" the French town of Soissons



A German aeroplane flying over Volhynia. (*By courtesy of "Het Vliegveld."*)



The uniform insignia of the U.S. Aviation Service. These are embroidered for officers in silver and for enlisted men in white.

devastated by Hun brutality, and restore it. It is proposed to raise money to provide dwellings for returning peasants and with the necessary equipment for a fresh start in life. Putting aside, for the moment, the question of "indemnities," there should be some golden opportunities for some of the bloated munitioneers to do penance for their suddenly acquired wealth, by following in the footsteps of the Detroiters.

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SIR WILLIAM DUNN, the Lord Mayor, is satisfied that, as a result of the arguments of the deputation, which recently waited upon the Prime Minister, in favour of the Government providing out of national funds for compensation to those who suffer damage from attacks by aircraft or bombardment, representatives of the Government and of the Committee on War Damage will immediately be at work on the details of the scheme to give effect to the principle which the Prime Minister had accepted. As a consequence the Lord Mayor, Lord Parmoor (member of the Judicial Committee of the Privy Council), and Mr. Mark Judge (chairman of the Committee on War Damage) have been appointed to represent the committee at this conference.

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AT Sotheby's, when presently the Alfred Morrison almost priceless collection of autographs, letters and papers comes under the hammer, there will be at least one item of interest to lovers of the history of aeronautics. Amongst the mass of prizes to be picked up are a couple of intricate pen-and-ink drawings of "war machines" by Leonardo da Vinci, with the descriptions written backwards for the purpose of secrecy. There may be others, but it were better for those keen upon the subject to personally go over the collection in case some item of treasure might be forthcoming.

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A VERY large number of "health resorts" have now been arranged for in the City of London for the temporary accommodation, during Hun air raids, of the moving population acknowledging the Lord Mayor for its head. Only buildings with strong concrete floors have been considered, and by degrees the red printed notices are becoming familiar, intimating the fact that the public, under raid circumstances, may take advantage of these welcome "funk-holes" until danger has passed. It is a pretty live problem when it is considered that there are 48 miles of streets in the City square mile, and, according to the last census, 1,250,000 people and over 200,000 vehicles enter and leave it every day. About 400,000 people remain at work during City business hours.

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Another Prize for Bombing Berlin.

THE *Figaro* announces that it has received a second offer of 5.000f. (£200) as a prize for the first aviator who drops a bomb on Berlin.

Gallantry by French Aviator.

FROM the following story, in which names are suppressed, and which is furnished by a *Times* correspondent, it may be gathered not only how closely the French air service is co-operating with ours, but also how promptly the French Government rewards its gallant soldiers :—

"In April last a combined Allied attack was made on a seaport 'somewhere in Flanders.' A British aeroplane was hit, and fell with its occupants into the sea. The position was so dangerous, and the enemy's fire so heavy, that the French Commandant forbade any attempt at relief. A French Enseigne de Vaisseau, however, in defiance of orders, went with his seaplane to the rescue, and succeeded in getting the British officers on to his craft. The machine being later disabled, they were all taken prisoners by the Germans.

"The French Commandant, in writing to the Enseigne's father, described the son's conduct as heroic. The fire was terrific, the young man's action was watched with the greatest anxiety, and the escape of the whole party from wounds was miraculous. After speaking in the highest terms of the young officer's conduct, the Commandant added that, as orders had been disobeyed, it would have been necessary, had he returned, to place him under arrest. The further duty had remained to report his conduct, with the result shown in the orders of superior authority. These included an Army Order of the day, recounting the exploit, and adding the palm to the Croix de Guerre, already earned by the Enseigne, and a decree appointing him Chevalier of the Legion of Honour. An order of the Minister of Marine of a few days' later date promoted the Enseigne de Vaisseau to the rank of lieutenant as a specially deserving case.

"His services have also been recognised by the King, who has been pleased to create him a member of the D.S.O. and to confer upon his observer the D.S.M. The King has also conferred the D.S.M. on the crew of the companion seaplane.

"The young officer is the son of a French nobleman of the South of France, connected with a British family well represented in the Services."

Autre temps, autre mœurs. Attention is drawn by "B. W." to what appears to be a particularly unpleasant phase of official legal bureaucracy. So much so, that one ventures to ask whether honour still exists in official quarters when a point in favour of bureaucracy has to be saved. The case as put by "B. W." under date August 3rd, is as follows :—

"I venture to draw your attention to the conduct of the Law Officers of the Crown in a recent case of public importance. They, at least, if the high traditions of the war count for anything, ought to conform to that standard. In July, 1916, the Attorney-General informed the House of Lords that the Government took possession of a well-known civilian aerodrome because it was unique and possessed exceptional advantages for training pilots, and the country needed it badly. He tried to justify on that ground his contention that there was no legal obligation on the Government to pay.

"In July, 1917 (last week), the Solicitor-General, when before arbitrators appointed to assess the price to be paid to the owners of the same aerodrome (which the Government have since decided to buy), strongly urged upon the arbitrators that the place was useless as an aerodrome, and that the Government ought only to pay the agricultural value of the land.

"Surely such conduct is highly reprehensible and unworthy of barristers occupying such high positions. Can one wonder if patriotism begins to wane and the people begin to discredit the statements of Ministers of the Crown ?"

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Indeed one cannot wonder. And it's going to be a lot worse before it's better, we fear. The pages of "FLIGHT" in the past bear witness to our opinion of the official treatment meted out to this particular aerodrome. The latest phase is a fitting official sequel to previous happenings.

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CONGRATULATIONS to Flight-Commander Geoffrey Terence Roland Hill, M.C., R.F.C., upon the further distinction conferred upon him by University College School old boys, in the presentation (per his father, Dr. M. J. M. Hill, Astor Professor of Pure Mathematics in the University of London) of the research medal which "Old Gowers" instituted 37 years ago for distribution from time to time to any pupil who, within ten years of leaving the school, shall have done such valuable original work as to merit it. Flight-Comdr. G. T. R. Hill, who is attached to the Experimental Flying Department at Farnborough, has done some highly valuable work for the country and received the M.C. about the same date as his brother, Capt. Roderic Hill, M.C., R.F.C., whose delightful work is so well known to our readers.

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The British Air Services

"PER ARDUA AD ASTRA"

UNDER this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the LONDON GAZETTE, *it is not repeated in this column.*

Royal Naval Air Service.

Admiralty, July 31st.

Eng. Lieut.-Comdr. A. Leamon-Berry graded as Prob. Sqdn. Comdr., seniority July 21st.

The following have been entered as Prob. Flight Officers (Temp.), seniority as stated: R. R. Richardson and C. S. Day; July 15th. L. E. Wood; July 21st. G. R. Nodwell, R. K. Brydon; July 22nd. V. H. Hervey; July 24th. H. Copley; July 30th.

The following have been entered as Prob. Ob. Officers (Temp.), seniority as under: L. E. Oakeshott, T. H. T. Russell; July 23rd. F. R. Allen; July 27th.

Lieuts. (R.N.V.R., Temp.) P. T. Hamilton, W. F. Vernon, S. T. Baker, W. E. Plaister, J. R. Erskine-Murray, all promoted to Lieut.-Comdr. (Temp.), seniority April 1st; and W. H. Yeatman-Biggs promoted to Lieut.-Comdr. (Temp.), seniority July 28th.

Sub-Lieut. (R.N.V.R., Temp.) W. H. Bedford promoted to Lieut. (Temp.), seniority July 28th.

The following temp. commissions (R.N.V.R.) have been granted, seniority as stated:—Lieuts.: D. R. Lyson; July 15th. F. H. Burgess (A.C. 11); July 26th. W. A. Herbert, J. C. Ainsworth and L. E. West; July 28th. H. Spink, G. Haslam, J. H. Ball (Temp. W.O., 11) and E. Stroud; July 30th. Sub-Lieuts.: T. H. Levett (late Prob. Flight Officer); July 29th. T. B. Glover; July 30th.

C.P.O. L. Gutteridge promoted to Warrant Officer, 2nd Gr. (Temp.), seniority July 28th.

P.O. C. J. Smith (serving as Acting Warrant Officer) granted rank of Sub-Lieut. (Temp., R.N.V.R.); July 28th.

Lieut. (Temp., R.N.V.R.) W. C. A. Meade granted a temp. commission as Ob. Lieut., seniority Oct. 26th.

Admiralty, August 1st.

Temp. Sub-Lieut. (R.N.V.R.) W. Venables promoted to Lieut., R.N.V.R. (Temp.), seniority June 23rd.

Sub-Lieut. (R.N.V.R.) J. M. Todd entered as Prob. Ob. Officer (Temp.), seniority Aug. 4th.

The following have been entered as Prob. Flight Officers (Temp.), seniority July 22nd: H. J. Andrews, F. E. A. Bainbridge, J. D. de F. Barnes, C. P. Boas, H. P. Boombes, H. Cooper, W. N. Cumming, F. G. Davies, E. H. Dyson, D. J. Galer, G. B. Gates, L. M. Hilton, C. E. Horrex, J. G. W. Jenner, E. B. Jones, F. J. N. Jones, D. H. Lees, T. Louth, P. A. Marriott, J. W. G. Price, H. E. T. Saunders, B. Savage, L. J. Spence, C. N. Stafford, R. W. Thompson, E. C. Toy, W. H. O. Wheeler, J. L. Whitaker, S. E. Whiteley, W. A. Yeulett, J. Gerard, W. A. C. Dicketts, R. G. Mitchell, O. S. Neill, L. P. S. Carrigan, G. Rose and H. H. Mitchell.

The following temp. entries as Prob. Ob. Officers have been made, seniority as stated: H. A. Havilland-Roe; July 29th. H. C. G. Cosh, G. S. Crowther, P. D. Doland E. C. Finzi, E. D. Harding, B. Marshal, K. L. C. Oxley, W. Page and J. Pilkington; Aug. 4th.

J. W. Moore and L. Murphy have been entered as Lieuts. (R.N.V.R., Temp.), seniority respectively July 24th and 29th.

Temp. commissions (R.N.V.R.) have been granted to the following, seniority as stated:—Lieuts.: A. L. Edwards and J. M. Auger; July 29th. J. L. Parsons, A. E. Hartley and A. D. Wigram; July 31st. Sub-Lieut.: E. G. Thompson: July 29th.

Admiralty, August 2nd.

Prob. Ob. Officers (Temp.) C. N. Ellen and O. R. Gayford both promoted to Ob. Sub-Lieuts. (Temp.), seniority respectively Mar. 1st and June 12th.

Admiralty, August 3rd.

Probationary Flight-Officers.—A. Shepard and J. W. Nixon, both entered as Proby. Observer Officers (temp.), seniority respectively May 6th and 27th.

Admiralty, August 4th.

E. W. Bulow, B.S.C., F.R.A.S., granted a temp. commission as Sub-Lieut. R.N.V.R., with seniority Aug. 1st.

E. A. Bostow, granted a temp. commission as Sub-Lieut. R.N.V.R., with seniority Aug. 3rd.

M. C. Purvis entered at Temp. Flight Officer, to date July 29th.

The following have been entered as Temp. Proby. Flight Officers, all to date July 29th: L. Latham, F. P. Pemble, A. W. Tibbetts, G. H. Whitmill, G. A. Wright, E. M. Ackery, B. T. Anderson, R. Binckes, W. R. C. Bairney, P. H. D. Blackman, J. H. Candell, E. N. Clifford, L. F. Cocks, W. N. Cross, P. G. Deedes, C. C. Dews, B. W. Godfrey, J. A. Gray, C. J. Heywood, and J. Hollick.

R. Forbes-Bentley, D.S.C., granted a temp. commission as Ob. Lieut., with seniority April 1st.

Temp. Proby. Ob. Officer G. H. Millar promoted to Temp. Ob. Lieut., with seniority June 17th.

Temp. Wt. Tel., R.N.R., S. C. Howes, entered as Temp. Proby. Ob. Officer, to date Aug. 25th.

C. J. W. Hatcher entered as Temp. Wt. Officer, 2nd grade, to date Aug. 2nd.

Admiralty, August 6th.

Flight Commander.—R. B. Ward, reappointed as Act. Squadron Commander, seniority July 26th.

Flight Lieutenants.—C. Murray and J. Forgon-Potts, reappointed as Acting Flight-Commanders, seniority July 26th.

Messrs. H. E. Foster, J. A. Strugnell, D. G. Hendy, and F. W. Verry, all entered as Proby. Flight Officers (temp.), seniority July 30th.

Acting A.M. (1).—J. N. Rutter, entered as Proby. Flight Officer (temp.), seniority July 29th.

A. M. (11).—H. S. Round, entered as Proby. Flight Officer (temp.), seniority July 29th; and H. A. Gibson, entered as Proby. Ob. Officer (temp.), seniority Aug. 3rd.

A. C. (1).—P. Fern, entered as Proby. Flight Officer (temp.), seniority July 29th.

Ordinary Seaman (R.N.V.R.).—E. W. Geer, entered as Proby. Flight Officer (Temp.), seniority Aug. 3rd.

Temp commissions as Lieut. (R.N.V.R.) have been granted to the undermentioned, seniority as stated:—J. Sydenham (P.O.), Aug. 2nd; M. G. Jones, J. G. Levy (A.C., 1) and F. J. Todd, Aug. 4th.

Royal Flying Corps (Military Wing).

London Gazette Supplement, July 31st.

Warrant and N.C.Os. to be Temp. 2nd Lieuts. (on prob.) for duty with the R.F.C.: Sergt. H. R. Griffin, from R.F.C.; June 7th. Coy. Sergt.-Major L. M. Nava, from H.A.C. (T.F.); June 11th.

The following appointments are made:—

Squadron Commander (whilst specially employed).—Lieut. (Temp. Capt.) A. C. Maund, Can. Local Forces, a Flight-Comdr., and to be Temp. Major whilst so employed; June 1st.

Flying Officer.—Temp. Lieut. F. O. Soden, attd. S. Staff. R., and to be transfd. to Gen. List; April 27th (substituted for the notification in the *Gazette* of May 17th).

General List.—To be Temp. Lieuts. whilst serving with R.F.C.: 2nd Lieut. A. A. Denison, M.C., York and Lanc. R.; Temp. 2nd Lieut. J. S. Cooper (since killed); Nov. 30th. 2nd Lieuts. (to be Temp. Lieuts. whilst serving with R.F.C.: P. Perfect, K.O. Sco. Bord.; W. B. Judd, Durh. L.I.; D. G. A. Heys, R.A.; T. S. Pearson, M.C., R.A.; J. T. Morgan, R.W. Fus.; R. St. J. Hartley, Devon. R.; A. G. Bond, S. Lan. R.; G. H. Russell, Notts and Derby R.; July 1st. 2nd Lieuts., S.R., to be Temp. Lieuts. whilst serving with R.F.C.: H. S. Baldwin, Worc. R.; P. L. Plant, R. Ir. Fus.; J. Hutcheson, Sco. Rif.; G. L. Percy, Lan. Fus.; N. L. Watt, King Edward's Horse; V. H. Hughes, R.G.A.; C. N. Silvester, R.F.A.; G. T. Henderson, A.S.C.; E. L. Ives, W. York. R.; J. N. K. Shepherd, North'n. R.; G. Leal, R.F.A.; G. N. Blennerhassett, R. Ir. Fus.; July 1st. Temp. 2nd Lieuts. to be Temp. Lieuts. whilst serving with R.F.C.: M. H. Harland, R.A.; A. S. Lee, attd. Notts and Derby R.; T. E. Duffy, Lan. Fus.; C. E. Prescott, A.S.C.; J. O. Whiting, Gen. List; L. Miller, Gen. List; F. A. Bathurst, W. Rid. R.; J. Angus, Gord. Highrs.; D. R. G. Mackay, Arg. and Suth'd. Highrs.; July 1st. Temp. 2nd Lieuts., Gen. List, to be Temp. Lieuts. whilst serving with R.F.C.: H. T. O. Windsor, W. H. Pierce, J. C. Kirkpatrick, C. C. Hayward, J. G. Coombe, H. A. Padley, T. K. Twist, J. .C Watson, R. S. Haward, W. S. Joel, H. H. Wade, T. M. O'Neill, W. A. Taylor, H. F. McLoughlin, N. M. Irvine, R. N. Smith, L. Seymour, F. G. Ibbett, E. C. J. Elliott, C. Arkle, E. R. Gunner, E. S. Williams, R. Cornford, G. Carr, C. P. Creighton, W. H. Farrow, C. G. H. Wadleigh, G. H. Raitt, F. W. Michell, J. L. Trollope; July 1st. 2nd Lieut. H. V. Jerrard, Gen. List, to be Temp. Lieut. whilst serving with R.F.C.; July 1st. To be Temp. 2nd Lieuts. (on prob.): J. E. Marigold, late Lieut. R. War. R. (T.F.); June 23rd. H. L. Doherty; July 5th. G. A. Spencer, T. J. O'Sullivan, late Lieut. Australian Imp. Force; July 12th. T. P. Jenkins, G. G. Smith; July 27th. Cadet F. B. Sellar, late 2nd Lieut. S. Afr. Inf.; July 30th.

Memoranda.—2nd Lieut. C. W. Olliver, R.F.C., S.R., to be Temp. Lieut. whilst especially employed; June 1st.

London Gazette Supplement, August 1st.

The following appointments are made:—

Flight-Commander.—Capt. R. B. Bourdillon, S.R., from a Flying Officer; July 18th.

Flying Officers.—2nd Lieut. (on prob.) C. Cox, S.R.; April 10th. 2nd Lieut. (on prob.) P. F. West, S.R.; April 12th. 2nd Lieut. (on prob.) W. D. Bostock. S.R.; May 1st. 2nd Lieut. (on prob.) G. S. Wilkinson, S.R.; May 2nd. 2nd Lieut. (on prob.) E. J. Head, S.R.; May 3rd. 2nd Lieut. (on prob.) A. C. Youdale, S.R.; May 9th. Lieut. W. L. Harrison, Canterbury Mtd. Rif.. May 29th. 2nd Lieut. H. Hammond, Dorset R., from Acting Lieut., D. of Corn. L.I., and to be secd.; June 1st. Temp. 2nd Lieut. H. N. Lett, Gen. List, from a Flying Officer (Ob.); June 6th, seniority Aug. 4th, 1916. 2nd Lieut. C. E. Holaway, Yeo. (T.F.), from an Equipment Officer, 3rd Cl.; June 8th. 2nd Lieut. (on prob.) L. B. Hyde-Pearson, S.R.; Temp. Lieut. A. J. Golding, A.S.C., and to be transfd. to the R.F.C., Gen. List; 2nd Lieut. K. Jamieson, Yeo. (T.F.), and to be secd.; June 9th. 2nd Lieut. J. S. Ralston, M.C., Sco. Rif. (T.F.), and to be secd.; 2nd Lieut. F. C. Brooks, R.A., from a Flying Officer (Ob.), seniority Sept. 6th; June 12th. 2nd Lieut. R. Buchanan, Wilts R. (T.F.), and to be secd.; June 16th. 2nd Lieut. L. F. C. St. Clair, Lrs., and to be secd.; June 25th. Temp. 2nd Lieut. (on prob.) S. R. Burton, Gen. List, and to be confirmed in his rank; July 3rd. 2nd Lieut. W. A. Campbell, S.R.; July 4th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: F. S. Thomas; July 7th. J. W. Ritch; July 9th. F. Skelton, Lieut. J. H. Deans, 162nd Can. Inf. Bn.; 2nd Lieut. I. A. Johnson-Gilbert, High. L.I., S.R., and to be secd.; July 10th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: A. B. Whiteside, S. R. Clarke, A. H. Peile, W. R. S. Smith, E. Pybus; July 10th. M. G. M. Oxley, A. T. Isbell, R. J. Underhill; July 11th. Temp. 2nd Lieut. C. E. Maslin, Gen. List, from a Flying Officer (Ob.), seniority Aug. 28th, 1916; Temp. 2nd Lieut. (on prob.) H. B. Parkinson, Gen. List, and to be confirmed in his rank; Capt. H. G. ffiske, R.F.A. (T.F.), from a Flying Officer (Ob.), seniority May 3rd, 1916; Temp. 2nd Lieut. (on prob.) H. A. Birks, Gen. List, and to be confirmed in his rank; 2nd Lieut. G. H. Williams, E. Lan. R. (T.F.), and to be secd.; July 12th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: C. F. Hunt; July 12th. R. C. Hume, W. B. Styles; July 13th. The appointment of 2nd Lieut. J. S. Turnbull, Worc. R., notified in the *Gazette* of April 14th, is antedated to Feb. 14th.

Flying Officers (Observers).—2nd Lieut. R. B. Dormor, R.E. (T.F.) (Nov, 20th, 1916); Temp. 2nd Lieut. P. Brookes, W. York. R., seniority Mar. 4th. and to be transfd. to the R.F.C., Gen. List; 2nd Lieut. G. N. Smith, L'pool R. (T.F.), seniority Mar. 12th, and to be secd.; Lieut. L. Murphy, R. Ir. R.. seniority Mar. 26th, and to be secd.; Temp. 2nd Lieut. E. J. Detmold, Res, Regts. of Cav., seniority April 15th, and to be transfd. to the R.F.C., Gen. List; July 15th. Temp. Capt. L. E. Barry, A.S.C., and to be transfd. to the R.F.C., Gen. List; July 14th, seniority April 17th. Lieut. A. E. Hahn, Can. Gen. List, seniority May 17th. Temp. 2nd Lieut. J. S. Cassels, M.C., R. Suss. R., seniority April 27th, and to be transfd. to the R.F.C., Gen. List; July 15th. Temp. 2nd Lieut. G. T. Fullalove, R. W. Surr. R., and to be transfd. to the R.F.C., Gen. List; July 14th, seniority May 5th. Temp. 2nd Lieut. (on prob.) G. E. Randall, Gen. List, and to be confirmed in his rank; July 15th, seniority May 17th. Lieut. C. T. R. Ward, Can. Gen. List; July 14th, seniority May 31st. 2nd Lieut. L. V. W. Clark, E. Surr. R., S.R.; July 15th, seniority April 3rd. July 15th, seniority April 11th: Lieut. W. B. Ferguson, Can. Railway Troops; 2nd Lieut. F. Woodcock, R.G.A., S.R.; 2nd Lieut. R. L. Tribe, R.A., and to be secd.; July 15th, seniority April 13th. July 15th, seniority April 18th: Temp. 2nd Lieut. E. M. Pocock, R. W. Surr. R., and to be transfd. to the R.F.C., Gen. List; Temp. 2nd Lieut. G. K. McArthur, Linc. R., and to be transfd. to the R.F.C., Gen. List; Temp. 2nd Lieut. (on prob.) T. Carson, Gen. List, and to be confirmed in his rank; July 15th, seniority May 17th.

Park Commander.—2nd Lieut. (Temp. Capt.) T. G. Clarson, S.R., from an Equipment Officer, 1st Cl., and to be Temp. Major whilst so employed July 1st.

Equipment Officers, 3rd Class.—Temp. 2nd Lieut. A. Watt, Res. Garr. Bn., Suff. R., and to be transfd. to the R.C.F., Gen. List; May 18th. Temp. 2nd Lieut. (on prob.) E. Pigott, Gen. List, and to be confirmed in rank; May 27th.

General List.—Temp. 2nd Lieuts. to be Temp. Lieuts.: M. V. McKeon; Aug. 31st, 1916. A. R. Nock, B. S. Lister, G. C. Body, S. D. Withers, R. C. Wansborough (S. Staffs. R.), T. Johnson-Gilbert, R. G. Torrance, C. Thomas, N. Goudie, H. S. Cudlip, R. N. Treadwell, W. G. Nicholls, H. G. Holt, M.C. (Leic. R.), R. T. Barlow, G. M. Lewis, F. M. Green, W. Wallace, N. B. Harris, R. W. Langmaid; June 1st. The following from R.F.C., to be Temp. 2nd Lieuts. (on prob.): Flight-Sergt. D. McLellan; July 17th. Acting-Sergt. J. A. Donnelly; July 20th. To be Temp. 2nd Lieuts. (on prob.): A. E. Lowry, late 2nd Lieut. Sea. Highrs.; July 5th. A. H. Turner, A. E. Steel, J. E. Kingham, T. W. King, O. Gibb, H. A. Chapman, E. L. Bothan, H. C. Bolingbroke, T. I. Bowen (late Temp. 2nd Lieut., York. R.), C. S. Buckingham, R. B. Winyard, E. S. Baker, F. B. Reed, C. H. Boreham, T. I. Grimes, The Hon. B. J. Fitzherbert, F. A. Beale; July 27th.

London Gazette Supplement, August 2nd.

The following appointments are made:—

Squadron Commander.—Lieut. (Temp. Capt.) L. T. N. Gould, M.C., R.A., from a Flight-Comdr., and to be Temp. Major whilst so employed; July 19th.

Flight-Commander.—The appointment of Lieut. (Temp. Capt.) L. J. Bayly, R.A., notified in the *Gazette* of Feb. 6th, is antedated to Nov. 4th.

Flying Officers.—Temp. 2nd Lieut. H. Arnold, Gen. List; May 24th. 2nd Lieut. E. D. Dent, Durh. L.I. (T.F.), and to be secd.; 2nd Lieut. N. C. Jones, R.F.A. (T.F.), and to be secd.; June 8th. Temp. 2nd Lieut. (on prob.) S. T. Hosken, Gen. List, and to be confirmed in his rank; June 9th. 2nd Lieut. (on prob.) J. A. MacKay, S.R.; June 25th. Temp. 2nd Lieut. G. R. Rowe, Garr. Bn., North'd Fus., and to be transfd. to the R.F.C., Gen. List; June 26th. Temp. 2nd Lieut. (on prob.) G. W. Armstrong, Gen. List, and to be confirmed in his rank; July 7th. 2nd Lieut. H. S. Wellby, Lond. R. (T.F.), and to be secd.; July 9th. Temp. 2nd Lieut. (on prob.) D. M. McGown, Gen. List, and to be confirmed in his rank; 2nd Lieut. F. G. C. Weare, E. Kent R., and to be secd.; Temp. 2nd Lieut. (on prob.) W. E. Theak, Gen. List, and to be confirmed in his rank; July 11th. Temp. 2nd Lieut. D. Maclean, R. W. Surr. R., and to be transfd. to the R.F.C., Gen. List. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: E. Greenwood, H. N. C. Robinson, F. G. W. Taylor, J. C. Hopkins; July 12th. G. L. Dore, L. H. Streten, H. K. P. Tiddy, and Lieut. P. Dalrymple-Willes, R. Lanc. R., S.R., and to be secd. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: D. MacLaren, H. A. Winter, L. G. Taylor, A. Rosenthal, E. G. MacLeod. Temp. 2nd Lieut. A. Ashhurst, attd. R. W. Fus., and to be transfd. to the R.F.C., Gen. List; July 13th. Temp. 2nd Lieut. (on prob.) A. S. N. Coombe, Gen. List, and to be confirmed in his rank; Lieut. C. J. Killeen, Worc. R., S.R., and to be secd. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: E. Bradley, H. E. Walker. Temp. Lieut. R. G. H. Adams, Middx. R., from a Flying Officer (Ob.), seniority Dec. 7th, 1915; 2nd Lieut. L. T. Onslow, R. W. Fus. (T.F.), and to be secd. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: H. A. Blain, A. C. Goldsmith; July 14th. L. P. Wallis, P. G. Mulholland. Temp. 2nd Lieut. (Temp. Lieut.) G. N. Dennis, E. York. R., from a Flying Officer (Ob.), seniority Aug. 4th, 1916. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: W. G. Allanson; July 15th. G. S. McKee; July 16th. The appointment of 2nd Lieut. H. S. Gough, Manch. R. (T.F.), notified in the *Gazette* of July 20th, is antedated to May 17th.

Flying Officers (Observers).—Lieut. W. E. R. Stone, Can. Art.; July 17th, seniority Mar. 13th. Temp. 2nd Lieut. R. C. G. Rowden, Som. L.I., seniority April 5th, and to be transfd. to the R.F.C, Gen. List; Temp. 2nd Lieut. G. S. Morgan, Dorset R., seniority April 12th, and to be transfd. to the R.F.C., Gen. List; 2nd Lieut. F. P. Blencowe, S. Staff. R., S.R., seniority April 16th, and to be secd.; Lieut. T. E. Garside, Can. Inf., seniority April 21st.; Temp. 2nd Lieut. M. Nicholson, Army Cyclist Corps, seniority April 23rd, and to be transfd. to the R.F.C., Gen. List; 2nd Lieut. W. de C. Dodd, R. Muns. Fus., S.R., seniority May 12th, and to be secd.; Temp. 2nd Lieut. L. A. Powell, Glouc. R., seniority May 15th, and to be transfd. to the R.F.C., Gen. List; July 16th. 2nd Lieut. H. J. Day, Glouc. R., and to be secd.; July 17th, seniority May 22nd; Lieut. W. B. MacKay, Can. Inf.; July 16th, seniority June 13th.

Assistant Instructors in Gunnery (graded as Equipment Officers, 3rd Class). Temp. 2nd Lieut. (on prob.) H. E. Went, Gen. List, and to be confirmed in his rank; April 10th. Lieut. E. R. Smith, N.Z. Inf.; Temp. 2nd Lieut. G. L. Chater, Norf. R.; Temp. 2nd Lieut. H. J. O. Barnett, Gen. List; Temp. 2nd Lieut. N. Penty, K.R.R.C., and transfd. to R.F.C., Gen. List; July 20th.

Balloon Officers.—2nd Lieut. W. F. N. Forrest, R.F.A., S.R.; Temp. 2nd Lieut. E. W. Horncastle, R.A., and to be transfd. to the R.F.C., Gen. List; 2nd Lieut. C. L. Phipps, R.G.A., S.R.; 2nd Lieut. R. A. Skelton, R.G.A., S.R.; July 12th.

Park Commander.—Capt. A. L. C. Neame, R.E., from a D.A.D. at the War Office, and to be Temp. Major whilst so employed; July 9th.

Equipment Officers, 3rd Class.—2nd Lieut. (on prob.) W. E. G. Sillick, S.R.; April 10th. 2nd Lieut. W. V. Gray, N. Lan. R. (T.F.), from a Flying Officer (Ob.); June 28th. 2nd Lieut. D. McI. Mitchell, S.R.; July 4th.

General List.—To be Temp. 2nd Lieuts. (on prob.): H. K. Boysen, E. B. Garnett, T. L. Atkinson, F. C. Conry, H. A. Smeeton, A. A. Allen, F. S. McClurg, C. Nelmes, H. A. Miller, C. C. Robinson, C. R. Moore, J. R. Park, A. C. Jones, A. Taylor, E. A. L. F. Smith, A. Muir, P. A. O'Brien, P. H. Raney; June 16th. R. E. H. Heenan, A. Gough, J. D. Graham, D. W. Harvey; July 16th.

Supplementary to Regular Corps.—The following 2nd Lieuts. (on prob.) are confirmed in their rank: D. McI. Mitchell, A. E. Watts and W. E. G. Sillick.

F. C. Andrews to be 2nd Lieut. (on prob.); Mar. 3rd.

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Wing Commander.—Capt. F. A. Wanklyn, M.C., R.A., from a D.A.D. at the War Office, and to be Temp. Lt.-Col. whilst so employed; July 4th.

Flight Commanders.—From Flying Officers, and to be Temp. Capts. whilst so employed:—2nd Lt. G. B. Pratt, R.A.; July 6th. 2nd Lt. (Temp. Lt.) C. R. Robbins, M.C., R.A.; July 19th; 2nd Lt. (Temp. Lt.) C. B. Riddle, Durh. L.I. (T.F.); July 20th.

Flying Officers.—2nd Lt. K. L. Mackenzie, S.R.; May 27th. Temp. 2nd Lt. (on prob.) A. J. S. Doble, Gen. List, and to be confirmed in his rank; June 1st. Temp. 2nd Lt. J. S. Mackenzie, Gen. List; June 20th; Temp. 2nd Lt. (on prob.) J. Phillips, Gen. List, and to be confirmed in his rank; June 22nd; 2nd Lt. R. L. James, R. W. Fus. (T.F.), and to be seconded; June 24th. Temp. 2nd Lts. (on prob.), Gen. List, and to be confirmed in their rank:—K. M. A. Cornford; June 25th. H. A. Mason; June 26th. Lt. J. G. Mackenzie, Can. Inf.; July 2nd. Temp. 2nd Lts. (on prob.), Gen. List, and to be confirmed in their rank:—J. E. Day July 4th. J. R. Spearing, E. H. P. Streather; July 8th. 2nd Lt. F. R. Gollop, Manch. R. (T.F.), and to be secd. Temp. 2nd Lts. (on prob.), Gen. List, and to be confirmed in their rank:—V. Mercer-Smith; July 9th. G. B. Barnett, C. E. Bacon, J. H. Hedding, L. E. S. Vaile, W. A. McCullock; July 10th. 2nd Lt. E. T. Smart, R.G.A., S.R.; July 14th. The date of seniority of Capt. T. E. Withington, Oxf. and Bucks L.I., is March 8th, 1916, and not as in the *Gazette* of July 5th.

Flying Officer (Observer).—Temp. Lt. R. H. Spencer, Gen. List (April 21st, seniority March 3rd, 1916, and to retain that seniority in his appointment as a flying officer from April 22nd).

Balloon Officer.—Temp. 2nd Lt. H. R. P. Collett, Gen. List; April 26th.

General List.—2nd Lts. (T.F.), to be Temp. Lts. whilst serving with the R.F.C.:—M. McCall, R. Sc. Fus.; H. B. New, Essex R.; D. G. Powell, S. Wales Bord.; L. H. Hansen, Yeo.; W. V. T. Rooper, Yeo.; A. Rice-Oxley, Shrops. L.I.; A. G. Whitehead, W. York. R.; C. B. S. Spackman, Norf. R.; J. H. Muller, Midd'x. R.; O. C. Bryson, Yeo.; G. A. A. Andrews, Rif. Brig.; W. Ross, R. W. Fus.; C. Cotterill, Ches. R.; C. D. McGurk, Durh. L.I.; F. H. E. Reeve, Nortd'd. Fus.; V. D. Siddons, North'n. R.; G. H. Wenn, R.F.A.; C. Cargenven, Yeo.; H. J. Finer, R.E.; H. G. Cox, R. Suss. R.; J. N. Wilkinson, R.E.; R. M. H. Young, R. Scots; J. P. Moir, R.E.; A. G. Davidson, Gord. Highrs.; C. Eales, Devon R.; W. Y. Walls, Arg. and Suth'd. Highrs.; V. Wigg, Lond. R.; E. S. Bacon, R.F.A.; L. Speller, R. W. Surr. R.; P. L. Stephens, Welsh R.; W. C. Cambray, Lond. R.; C. E. Saunders, Gord. Highrs.; R. M. Pegg, Durh. L.I.; W. Lingard, Manch. R.; G. T. R. Pettigrew, Hereford R.; D. Gordon, Arg. and Suth'd. Highrs.; A. Jerrard, S. Staff. R.; R. Martin, Yeo.; I. H. H. Robinson, R.G.A.; E. A. Lloyd, Yeo.; R. S. Burch, R.F.C. (Res.); W. B. Wood, Hamps. R.; C. H. Jeffs, Bord. R.; H. E. Faulkner, Lond. R.; G. Hall, Lond. R. July 1st. Temp. 2nd Lt. I. L. Stockhausen, British W. Indies R., to be Temp. Lt. whilst serving with the R.F.C.; July 1st. To be temp. 2nd Lts. (on prob.):—W. Paddon, W. Parkinson; July 16th. T. Harris, G. J. Biggs, A. Ireland, L. H. Seccombe, C. W. Ware, P. H. Newbery, F. W. M. Pedley; July 27th.

Balloon School of Instruction.

Commandant.—Graded as a Squadron Commander:—2nd Lt. (Temp. Capt.) J. W. Jardine, S.R., from a Balloon Co. Comdr. (graded as a Flight Comdr), and to be Temp. Maj. whilst so employed, vice Capt. (Temp. Maj.) D. Rainsford-Hannay, Ind. Inf., who continues to hold the appointment of Balloon Co. Comdr. (graded as a Squadron Commander); May 11th.

Supplementary to Regular Corps.—2nd Lt. (on prob.) (Temp. Capt.) L. A. Price is confirmed in his rank.

2nd Lts. to be Lts.:—T. Marburg, J. J. Lynch, E. J. Watkins, (Temp. Lt.) C. G. Coe, G. J. Williams, A. J. Johnston, T. L. Brennan, E. B. Horlick, E. S. Duggan, R. F. Howard, (Temp. Capt.) L. A. Price, V. W. B. Castle, A. H. Vinson, H. Hulbert, R. E. Dangerfield, C. J. R. Milton, W. Roche-Kelly, C. S. Hollinghurst, M.C., J. M. Drysdale, G. G. Callender, A. M. Pearson, W. N. Spragg, S. G. Howard, F. F. Woodyer, G. P. Achurch, C. H. Collins, H. B. Neame, L. W. White, (Temp. Capt.) A. C. Reeves, B. James, H. H. Griffith, G. A. Giles, A. G. Jarvis, P. G. Robinson, W. R. Bowick, V. T. Norminton, K. W. P. Hindley, R. M. Charley, S. Chappell, T. B. W. Spencer, D. S. Evans, (Temp. Capt.) H. J. Butler, (Temp. Capt.) W. R. G. Atkins, C. M. W. Park; July 1st.

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Squadron Commander.—Lieut. (Temp. Capt.) W. J. C. Kennedy-Cochran-Patrick, M.C., Rif. Brig., from a Flight-Comdr., and to be Temp. Maj. whilst so employed; July 22nd.

Flight Commanders.—From Flying Officers, and to be Temp. Capts. whilst so employed:—2nd Lieut. (Temp. Lieut.) A. W. F. Glenny, A.S.C.; May 25th. Temp. 2nd Lieut. D. P. Collis, Gen. List; July 22nd. Lieut. C. E. Blayney, S.R.; July 23rd.

Flying Officers.—Temp. 2nd Lieut. (on prob.) H. M. Franklin, Gen. List, and to be confirmed in his rank; April 7th. 2nd Lieut. G. R. James, S.R.; May 23rd. Temp. Lieut. S. F. H. Thompson, A.S.C., and to be transfd. to R.F.C., Gen. List; June 7th. Temp. Capt. A. Storey, A.S.C., and to be transfd. to R.F.C., Gen. List; June 9th. 2nd Lieut. W. Deane, Norf. R. (T.F.), and to be secd.; June 10th. Lieut. C. G. Barker, Ind. Army Res. of Off.; June 18th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—G. Irwing; June 29th. V. Norbury; July 4th. Temp. 2nd Lieut. (on prob.) E. T. Molyneux, Gen. List; July 13th.

Temp. 2nd Lieut. (on prob.) E. P. Lewis, Gen. List, and to be confirmed in his rank: Lieut. J. P. Shaver, Canadian A.S.C.; Temp. Capt. S. C. F. Bacon, attd. Ches. R., and to be transfd. to R.F.C., Gen. List. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—J. G. Blane, S. M. Park; July 14th.

C. W. Usher, 2nd Lieut. J. K. Finlay, S.R., Lieut. R. W. Jackson, Canadian Inf. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—A. Appleby, W. E. F. Jones, A. H. Clough, A. F. Wilson; 2nd Lieut. E. S. Livock, R. W. Surr. R. (T.F.), and to be secd. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—H. C. Smith, J. H. Reeves; Lieut. C. P. Wingfield, R. Ir. Fus., S.R., and to be secd. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—A. E. Withers, W. G. Heathcote, H. Weightman; July 16th.

Temp. 2nd Lieut. C. E. Pither, Gen. List, from a Flying Officer (Ob.), seniority May 2nd, 1916; Temp. 2nd Lieut. J. M. Glaisher, R. Fus., and to be transfd. to R.F.C., Gen. List; Temp. 2nd Lieut. (on prob.) N. M. Drysdale, Gen. List, and to be confirmed in his rank; Temp. Lieut. A. G. Wingate-Gray, attd. Bord. R., and to be transfd. to R.F.C., Gen. List; Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—W. R. Kingsland; July 17th.

C. F. King, A. P. C. Wigan, T. F. Williams, G. B. Wigle; July 18th.

Flying Officers (Observers).—2nd Lieut. P. J. Noland, R.A., seniority Feb. 3rd, and to be secd.; 2nd Lieut. (Temp. Lieut.) J. R. Walker, 6th W. Rid. R. (T.F.), seniority Feb. 20th, and to be secd.; Temp. Lieut. C. R. Field, A.S.C., seniority Feb. 28th, and to be transfd. to R.F.C., Gen. List; Temp. 2nd Lieut. J. E. Dumbleton, S. Staff. R., seniority March 3rd, and to be transfd. to R.F.C., Gen. List; Temp. 2nd Lieut. H. T. R. Ford, Gen. List, June 5th, seniority April 12th. July 19th, seniority April 13th:—2nd Lieut. C. de L. Shortt, R.G.A., S.R., 2nd Lieut. J. J. St. L. Martin, R.F.A., S.R.; July 18th. Temp. 2nd Lieut. G. T. Cooke, R. Berks R., seniority, April 26th, and to be transfd. to R.F.C., Gen. List; Lieut. T. E. Godwin, Canadian Gen. List, seniority May 9th. Lieut. M. W. Waddington, Canadian Art. (July 18th, seniority June 18th; July 19th.

Balloon Company Commander (graded as a Flight-Commander).—Capt. (Temp. Maj.) J. H. Davies, Ches. R. (T.F.), from a Balloon Officer; July 23rd.

Balloon Officers.—2nd Lieut. G. H. Gibbs, R.G.A., S.R.; Temp. 2nd Lieut. (acting Lieut.) H. Olivier, R.A., to relinquish his acting rank, and to be transfd. to R.F.C., Gen. List; July 12th.

Adjutant.—Capt. W. H. L. O'Neill, Ind. Inf., from a Flying Officer (Ob.); June 18th.

Park Commander.—Capt. C. E. Gardner, Glouc. R. (T.F.), from an Equipment Officer, 1st Cl., and to be Temp. Maj. whilst so employed; July 27th.

Equipment Officers, 1st Class.—From the 2nd Cl., and to be Temp. Capts. whilst so employed:—Lieut. W. W. Stenning, S.R.; July 21st. Lieut. E. S. Bramham, S.R.; July 27th.

2nd Class.—From the 3rd Class:—Lieut. J. G. Western, S.R.; July 21st. 2nd Lieut. F. Petch, and to be Temp. Lieut. whilst so employed; July 27th.

3rd Class.—May 14th.—Temp. 2nd Lieut. (on prob.) A. E. Williams, Gen. List, and to be confirmed in his rank; Temp. 2nd Lieut. A. L. Underwood, attd. R. Fus., and to be transfd. to R.F.C., Gen. List; Temp. 2nd Lieut. (on prob.) C. H. O. Stanton, Gen. List, and to be confirmed in his rank; July 2nd.

General List.—Temp. 2nd Lieuts., Gen. List, to be Temp. Lieuts. whilst serving with the R.F.C.; July 1st:—W. P. MacD. Brettell, C. Courtneidge, F. Tingle, W. B. South, T. E. Drowley, J. V. Aspinall, F. F. H. E. Kolligs, O. B. W. Wills, W. M. Roskelly, J. W. Sheridan, B. McEntegart, E. H. Lascelles, E. L. Ardley, W. T. H. Hocking, O. L. Burt, W. A. Wright, E. W. Hadrill, J. Barker, S. Blair, D. Langlands, M. L. Horn, A. Sleep, R. F. Browne, H. S. Robertson.

Supplementary to Regular Corps.

2nd Lieut. (on prob.) J. K. Finlay is confirmed in his rank.

FLIGHT

Personals.

UNDER the above heading will be published weekly particulars of a personal character relating to those who have fallen or have been wounded in the country's service, announcements of marriages and other items concerning members of the Flying Services and others well known in the world of aviation. We shall be pleased to receive for publication properly authenticated particulars suitable for this column.

Casualties.

Second Lieutenant ARTHUR LESLIE CONSTABLE, R.F.C., reported missing on March 17th, 1917, later reported killed in aerial combat, obtained his commission in July, 1916, and gained his Wings in the following August. He left for France in February this year, and was the only son of the late Mr. A. K. Constable—well known in the tobacco world—of Liverpool, and Mrs. Constable, of Arthog. He was 26 years of age. He received his education at the Liverpool Institute, and at the time of his joining the Royal Flying Corps was employed by the British-American Tobacco Co., Ltd., of London and the provinces, as a pupil-manager.

Captain W. G. S. CURPHEY, M.C., R.F.C., son of Mr. W. S. Curphey, of the Local Government Board, Whitehall, and 87, Canfield Gardens, Hampstead, was reported as missing on May 14th. News has now been received that he died on May 15th in a German field hospital. He was 21 years of age, and was educated at Glasgow Academy and at University College School, London. He joined the Royal Berkshire Regiment in 1914, but transferred to the R.F.C. in 1916, and was awarded the Military Cross in that year. The *London Gazette* of November 19th stated :—" He brought down an enemy machine, and two days later attacked and brought down another. He has frequently attacked formations of hostile aircraft and brought them down." In February he was awarded a bar to his M.C., the service for which it was awarded being thus described in the *Gazette* :—" He, with a patrol of four machines, attacked a hostile formation of 10 machines. After a prolonged fight he drove one enemy machine down. Later, although wounded, he again led another attack on a hostile machine and succeeded in bringing it down. He has on many previous occasions done fine work."

Second Lieutenant LEONARD ALFRED MCPHERSON, R.F.C., who was reported missing, and later killed, on July 28th, was 19 years of age, and was the eldest son of Mr. A. McPherson, late principal of the Printing Office, Bank of England, and Mrs. McPherson, of 203, Rosendale Road, West Dulwich. He was educated at Dulwich College, where he held the rank of colour-sergeant in the O.T.C. He left Dulwich in July, 1915, when he was 17 years of age, and joined the Inns of Court O.T.C., being gazetted to a commission in the R.F.C. in January of this year. He obtained his wings and left England for the front early in May. His commanding officer writes :—" He met his death with an aerial gunner on the evening of July 28th. He must have seen some enemy troops on the road, and came down low in order to fire on them with his machine-gun. In doing this brave act he was evidently fired on from the ground, and must have been killed instantly. The machine came down in No Man's Land, and the bodies were recovered with difficulty. . . . He died like a gallant English gentleman in the execution of his duty."

Second Lieutenant RONALD CHARLES WYBROW MORGAN, South Wales Borderers, whose death took place on July 28th, as the result of wounds received the previous day, was the only child of A. Herbert Morgan, of Upthorpe, Westgate-on-Sea, and 16, Mark Lane, E.C. He was born in September, 1897, and educated at Doon House, Westgate-on-Sea, and at Uppingham School. Obtaining his commission in July, 1915, he was attached to the Royal Flying Corps a year later, and gained his pilot's certificate early in the present year. He went to the front last April, and remained there until the time of his death.

Second Lieutenant TOM BERNARD MORRIS, Royal Welsh Fusiliers, killed on July 23rd, was the only child of Mr. and Mrs. T. Morris, of Manila Road, Clifton. He was an old Alleynian. Joining the Artists' Rifles in May, 1915, he was gazetted to the Royal Welsh Fusiliers in the following November, and proceeded to Egypt early in January, 1916. He transferred to the Royal Flying Corps in September, and, on obtaining his Wings, went to France in January of this year. Being invalided from the Royal Flying Corps in May, he was attached to a battalion of the Royal Welsh Fusiliers, with which he was serving at the time of his death.

Second Lieutenant A. G. ROBERTSON, Black Watch and R.F.C., reported missing on June 8th, now reported killed, aged 19, was second son of Mr. Duncan J. Robertson, County Clerk of Orkney. He was educated at Pembroke School, Bruges, Haileybury, and Sandhurst. He obtained his commission in August, 1916, and qualified as a flying officer last January. He was sent to the front at the end of last March, and in April was injured in an accident and sent to this country on a fortnight's sick leave. His elder brother is a lieutenant in the R.F.A.

Lieutenant THOMAS EARLE GORDON SCAIFE, M.C., Dragoon Guards, attached R.F.C., who was reported missing while flying over the enemy lines on September 26th, 1916, is now officially presumed to have died on that date. Born at Leicester in 1892, he was the only son of Mr. T. E. Scaife, M.Inst.C.E., Cape Town, and Mrs. Scaife, Earles Dyke, Camps Bay, C.P. He received his education at the South African College School, Cape Town, and was farming in South Africa when the war broke out. He was a trooper in the Mounted Rifles of the Union Defence Force, but having received a nomination he entered Sandhurst in May, 1915, and in September of the same year he was attached to the R.F.C. In December he went to the front and was continously flying, with the exception of a few days' leave, until he met with his death. In August, 1916, Lieutenant Scaife was awarded the Military Cross for skill when on contact patrol work during active operations. On one occasion, when flying at 1,000 ft., his petrol tanks were pierced by shell fire. He managed to stop the holes and enabled his pilot to bring the machine home. He had been several times mentioned in despatches.

Captain GEOFFREY CHOLERTON SMITH, M.C., A.S.C., attached R.F.C., who died of wounds on July 31st, was the younger son of Mr. and Mrs. Alfred Smith, of 11, Magdalen Road, Wandsworth Common. He was born in April, 1897, and was educated at Emmanuel School, Wandsworth Common, and Strand School, Brixton. He was a member of the school O.T.C., entered Sandhurst in April, 1915, and was gazetted to the Army Service Corps in August, 1915. He was sent to the front in September, 1915, was attached to a French mortar battery in June, 1916, and took part in the battle of the Somme. He was awarded the Military Cross for gallant conduct in an engagement, and was transferred to the R.F.C. last January.

Lieutenant W. G. D. TURNER, R.F.C., who is reported to have been killed in action in an air fight over the enemy lines on May 24th, was aged 21, and was the second son of Mr. and Mrs. A. Turner, late of Clifton Lodge, East Heath Road, Hampstead, N.W. He was educated at Heath Mount, Hampstead, St. Cuthbert's, Malvern Link, and at Malvern College, where he was a member of the college O.T.C. He went up to St. John's College, Oxford, in October, 1914, where he joined the University O.T.C., from which he obtained the next month a commission in the Middlesex Regiment. After serving for about a year and a half he exchanged into the R.F.C., and gained his " wings " in July, 1916, being appointed an instructor on the day he became a pilot. For many months he acted as an instructor with various squadrons, and last May he went abroad. On May 24th he was returning from a reconnaissance over the enemy lines when he was attacked by hostile aircraft. He was then reported missing only, but is now reported killed.

Second Lieutenant VAUGHAN FLOYER WILLIAMS, R.F.C., reported missing on April 2nd, is now known to have been killed in an air fight at the front on that day. He was aged 18, and was the youngest son of Mr. and Mrs. Glynne Williams, of 7, Berkeley House, Hay Hill, W. He was educated at St. Edmunds, Hindhead, and at Rugby (Mr. St. Hills), and joined the Royal Flying Corps a few days after leaving school in July, 1916. He obtained his Wings in the following October,

and went to the front at the beginning of this year. He was home on leave in the latter part of March, and was killed the day after he rejoined his squadron. His eldest brother, Lieut. Martyn Floyer Williams, R.F.A., was killed last August.

The death has occurred in an aeroplane accident of Lieutenant GERALD C. N. COOKE, of the Canadian Army, the only surviving son of Mr. and Mrs. Charles Cooke, of Palace Road, Crouch End, N. The accident occurred on a trial trip which was to have preceded Lieutenant Cooke's transference to the R.F.C. He was born in 1887, and as a boy sang in St. Paul's Cathedral Choir. Afterwards he went to St. Mary's College, Harlow. In 1905 he proceeded to Canada, and was engaged in farming. Lieutenant Cooke joined the ranks in 1916, and refused a commission until he had earned it. His brother was killed at Ypres last year.

Lieutenant IVAN BEACLERK HART-DAVIES, R.F.C., who was killed in an aeroplane accident in England, was the son of the late Rev. John Hart-Davies, of Southam Rectory, Warwickshire, and was 39 years of age. He was educated at a school at Maidenhead and at King's School, Canterbury, and began life as a schoolmaster at New Beacon, Sevenoaks. Afterwards, however, he worked up a wide life insurance and motor insurance business in the Midlands. He held the "end-to-end" "record" for motor-cycle and light cars, and in 1913, with three other motor cyclists, won the Mürren Cup, though none of the four had done any bobsleighing before. He took to flying before the war as an amateur, but last year he obtained a commission in the R.F.C., and was on the eve of going to the front.

Captain PERCIVAL FRANCIS CROMMELIN D'ERF WHEELER, Dorset Regiment, attached R.F.C., who was killed on July 24th, was the eldest son of Captain d'Erf Wheeler, R.A.M.C., and Mrs. d'Erf Wheeler, a daughter of the late Bishop Blyth, of Jerusalem. He was born at Jerusalem in April, 1894, and was educated at Clare House, Beckenham, and Trent College. In August, 1913, he was gazetted to a commission, and in September, 1914, he was sent to France in charge of a draft, and a month later was severely wounded at La Bassée. This incapacitated him for active service for the next 14 months, but for the last six months he was able to do duty with the regiment at home. He was promoted captain in February, 1915, being then not yet 21, and in December of the same year he took a draft to Mesopotamia, where he served for eight months, at the end of which illness compelled his removal to hospital at Bombay. When about to return to Mesopotamia he was recalled for training in the R.F.C., and he returned home last January. He had completed his course and was on the point of receiving his wings when he met his death while flying at an aerodrome in England.

Married and to be Married.

The wedding took place at Datchet Parish Church on August 1st of Lieutenant T. L. COPE, R.N.A.S., son of the late Mr. Thomas Cope and Mrs. Gardiner, and the Hon. NORAH ROBINSON, eldest daughter of Lord and Lady Rosmead, of Westfields, Datchet. Lieutenant Cope was a member of Sir Ernest Shackleton's Expedition to the South Pole. On returning from the expedition, Mr. Cope at once got a commission in the R.N.A.S. The bride has only recently returned from working in a French hospital, and was back on short leave when the marriage was arranged. Her only brother, the Hon. Hercules Robinson, fell at Loos.

The marriage of Captain JOHN MILNE, M.C., R.F.C., elder son of Mr. and Mrs. Jack Milne, of The Brook House, Sutton Courtenay, Berks, to JOAN, younger daughter of Mr. THOMAS HANMER, took place at Sutton Courtenay on July 24th, the Rev. E. B. Mackay officiating.

LEGAL INTELLIGENCE.

Admiralty Contracts for Aircraft.

AT Bow Street Police Court on August 3rd, before Sir John Dickinson, Mr. W. A. Casson, of 8, Bedford Road, Chiswick, described as a barrister and retired Civil servant, surrendered to his bail (having been remanded on July 25th), and Wing Commander John Cyril Porte, R.N.A.S., appeared in answer to a summons, the charge against both defendants being that they unlawfully conspired together, and with Lyman J. Seeley and other persons, to contravene and set at naught the Prevention of Corruption Act, 1906, in respect of divers large sums of money, amounting to about £48,000, from time to time paid to and received by Porte, an agent of the Crown, in respect of certain contracts made between the Lords Commissioners of the Admiralty and the Curtiss Aeroplane Co. of New York. Both defendants occupied seats in front of the dock.

The Attorney-General (Sir Frederick Smith, K.C.) and Sir Archibald Bodkin conducted the case for the Director of Public Prosecutions; Mr. W. J. Synnott appeared for Casson, and Sir George Lewis for Porte.

In opening, the Attorney-General called attention to the terms of Section 1 of the Act under which the prosecurion had been instituted, and said it was obviously directed against the system of secret gifts by which a principal was practically made to pay a commission to his own agent. The matters involved in this case were discovered in due course of an enquiry made by direction of the First Lord of the Admiralty, and presided over by Mr. Butcher, K.C., which had to do with transactions between the Admiralty and the Curtiss Aeroplane Company.

The Attorney-General then outlined the history of Commander Porte's connection with aviation and his proposal to fly across the Atlantic. He said that Commander Porte had also made an agreement with the Curtiss Co. to act as their agent, and to receive a commission of 20 to 25 per cent. of the selling price. On the outbreak of war he came home and was given a commission in the R.N.A.S. He was also asked to get an estimate from the Curtiss Co. for two twin engine and other aeroplanes. The Attorney-General went on to say that Casson was a friend of Porte and knew of the favourable opinion the Admiralty had formed of the boats, but was also alive to the difficulties which might arise under the 1st section of the Prevention of Corruption Act. An arrangement was made that Porte should ostensibly give up all his business connections and transfer to Casson all his interests in the Curtiss flying-boat under his agreement with Seeley, on condition that Casson should discharge all Porte's duties in connection with that matter, and proceed, when necessary, to America at his own expense.

The real agreement between them was a verbal one, its nature being this, that Casson should be put forward as the person dealing with the Curtiss Company, that Porte's name should be kept out of it, and that all the profits—20 or 25 per cent.—should be nominally received by Casson, but should be afterwards divided in the proportion of three-fourths to Porte and one-fourth to Casson. Needless to say nothing in regard to that secret arrangement was disclosed to the Admiralty. A number of orders were subsequently given by the latter to the Curtiss Company through Porte.

At some time during the execution of these orders Seeley arrived in London, and made further arrangements with Casson about dividing commissions. The arrangement between Casson and Porte was that of the 15 per cent. the former received from the Company 7½ per cent. should go to Seeley, and that of the other moiety three-fourths should go to Porte and one-fourth to Casson. So large was the business done between the Admiralty and the Curtiss Company that in 1916 the orders placed with the latter amounted to $11,000,000, of which $5,000,000 worth had been delivered and $6,000,000 worth paid for. Under the agreement already described the remittances from Seeley to Casson by way of commission seemed to have totalled some £64,000, and of three-fourths of that sum Casson seemed to have regarded himself as the holder in trust for Porte, on whose behalf he had meanwhile made certain payments and some investments, whilst he had retained about one-fourth, or £16,000 odd, for his (Casson's) own benefit. Whether the prices paid by the Admiralty were reasonable or not had nothing to do with this matter of corrupt commissions.

There was no doubt that these persons knew that the Admiralty were paying enormous sums of money, some of which went to Casson for doing nothing. Porte was a very skilful man, and had placed his services at the disposal of the Government, but this, of course, was a matter that would have to be thoroughly enquired into. Casson was on the point of going to France when he was arrested. It was not suggested that he was absconding. He had in his pocket a letter from Porte, in which he suggested that things were going to move.

At this point Porte was taken ill, and asked for permission to leave the Court.

The Attorney-General said he had concluded his opening of the case.

The hearing was adjourned until August 10th. Porte was allowed out on his own recognisances in £2,000. Casson was admitted to the same bail as before. The magistrate stated that he would take the evidence in the case every Friday and Saturday morning until the end was reached.

FLIGHT

AVIATION IN PARLIAMENT.

Enemy Aliens and Aerodromes.

MR. BILLING, in the House of Commons on July 31st, asked whether, having regard to recent occurrences at a certain aerodrome, all enemy aliens will be removed from the districts and all German prisoners from the aerodrome?

Mr. Macpherson: I am not aware to what occurrence reference is made, but if I may be given details I will have enquiries made and appropriate action taken as far as lies in my power.

Mr. Billing: Is the hon. gentleman not aware that in the question I put down the specific aerodrome, which I was asked to omit? Surely that question would give the hon. gentleman facilities for obtaining information.

Mr. Macpherson: I confess to having the question submitted to me, and I thought it was against the public interest that any specific aerodrome should be mentioned. I therefore took the responsibility of abstracting that myself. I made enquiries to-day, and the authorities at the War Office have no information at all about a recent occurrence such as the hon. member suggests.

Aeroplane Manufacture at Railway Companies' Works.

MR. DUNCAN asked the Minister of Munitions whether an offer has been made by the Great Western Railway Co. to manufacture aeroplanes in the carriage department at the Swindon railway works; whether he is aware that facilities exist for the testing and finish of machines; and whether such offer has been refused?

Sir Worthington Evans (Joint Parliamentary Secretary to the Ministry of Munitions): Some time ago, before the taking over of the Aeronautical Supply Department by the Ministry of Munitions, the Great Western Railway, with other railway companies, were asked to what extent they could assist in the manufacture of aeroplanes and aeroplane parts. It appeared that the facilities they could then offer were comparatively small, and the matter was not proceeded with. Some aeroplane parts have, however, been constructed by the railway companies.

Mr. Duncan: Might not a fresh communication be sent to the railway companies to see if they could now supply the goods that are required?

Sir W. Evans: I understand that the facilities have not increased within the last few months; but if there is any individual railway company which can do anything substantial, I am sure that it will be done.

Mr. Duncan: I understand that that is so.

R.N.A.S. Station at Felixstowe.

SIR HENRY DALZIEL asked the Under-Secretary of State for War whether on the morning of the raid last Sunday the Felixstowe air commander was at his post; if not, will he say why not; and whether it is in the best interests of the Flying Service that a commander should live nearly three miles from the air station?

The Parliamentary Secretary to the Admiralty (Dr. Macnamara): It is presumed that my right hon. friend is referring to the Royal Naval Air Station, and therefore I have been asked to answer this question. The reference is, of course, to the raid of last Sunday week. The commanding officer was not on the station at the time mentioned, but there was present, as there always is, an officer of sufficient experience and seniority to take charge. It has not been possible to provide accommodation for the commanding officer actually at the station itself.

Mr. Billing: Can the hon. gentleman say whether in these circumstances he will see that whoever is left in command of the station has authority to give an order for the squadron to engage the enemy, without having to wait to find the commanding officer or to get through to headquarters?

Dr. Macnamara: There is no need to say that. The second in command has full authority to engage the enemy at once, without waiting for anybody.

Injured Policemen and Gold Stripes.

MR. BILLING asked the Home Secretary whether a policeman who may suffer injury directly or indirectly attributable to the action of the enemy is entitled to wear the gold stripe on the left arm denoting injury received in the service of the country?

The Secretary of State for the Home Department (Sir George Cave): I understand that, under the Army Orders, the award of the gold braid distinction is confined to officers, soldiers, members of the Military Nursing Services, members of Voluntary Aid Detachments, and special probationers employed in military hospitals who are wounded by the enemy whilst serving in this country.

Mr. Billing: In view of the fact that you call on the police to act in a military capacity, will they be included in this distinction?

Sir G. Cave: We do not ask the police to act in any military capacity.

Mr. Billing: Are not the police asked to expose themselves to danger which otherwise they would not have to do?

Sir G. Cave: The police have always exposed themselves to danger.

Anti-Aircraft Shell.

MR. BILLING asked the Home Secretary whether an aerial torpedo or bomb fell and failed to explode in the City in the course of a recent air raid; whether this live explosive has been removed; if not, whether this explosive has been left in a live state and concreted over; and whether it is the duty of the military or civil authorities to remove it?

Mr. Macpherson: No aerial torpedo was dropped in the recent air raid. Several bombs fell in the City and failed to explode, but in no case were such bombs left in a live state for a longer time than could be avoided. Since the bombs penetrate a considerable distance into the ground, often in most inaccessible places, their removal is sometimes a slow and laborious process. I understand that during the raid on July 7th an unexploded anti-aircraft shell, or a portion of one, made a hole in a cement pavement in the City and penetrated 6 feet below ground between a hydraulic main and a telephone cable. Its removal at the time presented difficulties, and in order to relieve the police of the necessity of guarding it, the place was cemented over, pending the matter being attended to.

Mr. Billing: In view of the fact that the hon. gentleman states that no bomb is left in a live state, are we to understand that the bomb is accessible to remove the fuse and is inaccessible to be removed from the ground and to remove the charge from it?

Mr. Macpherson: The hon. gentleman misrepresents what I did say. I said, "In no case were such bombs left in a live state for a longer time than could be avoided."

Enemy Air Raids.

MR. ROWLANDS, on August 1st, asked the Under-Secretary of State for War whether there was any person who lost his life in the defence of London in the air raid on June 13th; and, if so, can he state his name and rank?

Mr. Macpherson: The usual custom is to mention the names of casualties, if any occur, in the casualty lists, but not to say anything of the service on which they occurred, and I am afraid that no exception can be made in this case.

Aircraft Raid Insurance.

LIEUT.-COMMANDER NORMAN CRAIG asked the Prime Minister whether, having regard to the fact that the persons in coastal towns insuring against enemy attack from air and sea are invariably persons who have suffered pecuniary loss through the war by the accident of their geographical situation, he will consider anew the propriety of providing for such insurances out of Imperial resources?

Mr. Bonar Law: Arrangements are being made for a Conference between representatives of the Government and of the deputation recently received by the Prime Minister on this subject, in order that a decision may be reached without delay.

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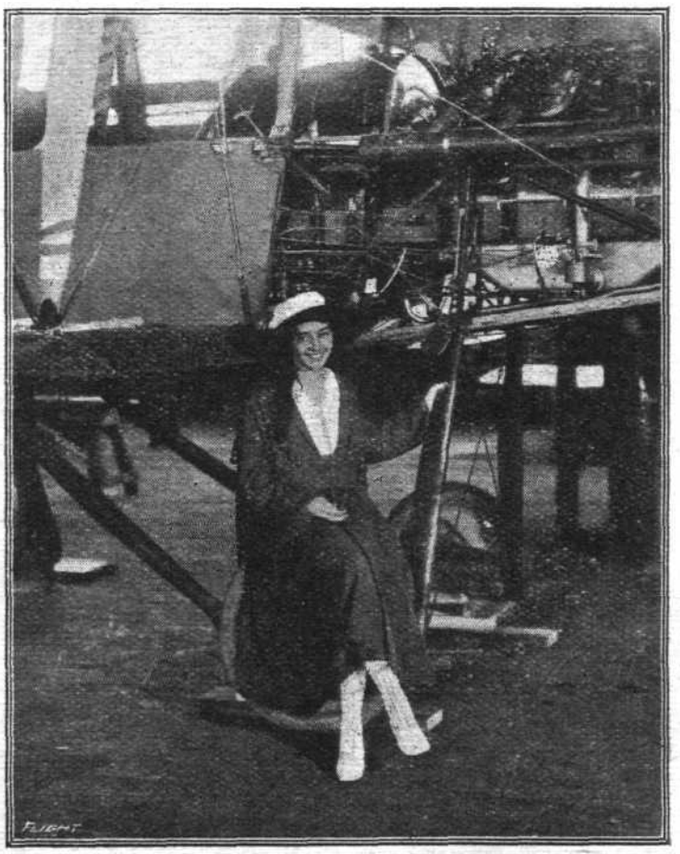
MISS STINSON HELPS THE U.S. RED CROSS.

MISS KATHERINE STINSON, the nineteen-year-old American aviatrix, whom most people have now read about, after her return from a six months' exhibition flying trip in Japan and China, recently went to the Curtiss factory at Buffalo and bought a machine. The Curtiss people were, of course, hardly able to make delivery immediately, but as she wanted to make a special flight under the auspices of the Red Cross from Buffalo to Albany, New York, Philadelphia, ending at Washington, for the purpose of stirring up interest in this great cause, the company let her have a JN just "off the floor," although she has not been in the habit of flying this machine, having used a small exhibition type, with a Gnome motor, for her regular flights. Yet after less than 15 minutes' instruction under Rohlfs, the head instructor, she started off on her 670-mile flight in a drizzling rain, leaving Buffalo at 11.50 a.m. Sunday. She made Rochester, a distance of 68 miles, in 45 minutes. She left Rochester at 2.15, arriving at Syracuse at 3.25. She left Syracuse at 5 p.m. and arrived at Albany at 6.45, landing at the same place where Mr. Curtiss started his Albany to New York flight.

The next morning, due to the fact that the Red Cross people wished her to fly over New York at 12 noon, she left Albany at 10 a.m., and reached the metropolis at exactly 12 o'clock noon, landing at Governors' Island at 12.17. After having lunch there she left at 2 p.m., and arrived in Philadelphia at 3.10. Here she was met by a big party of Red Cross people and newspaper men, and did not succeed in getting away until 5.30. She arrived at the Potomac Park polo grounds at 7.30, and after a 15 minutes' demonstration at an elevation of 4,000 feet, she made a graceful wide circuit of the Washington monument, taking a nose dive of 1,800 feet, and glided into the polo grounds, the OX engine running all the time like a top.

Altogether it was some "stunt" for a nineteen-year-old small maiden of 5 feet 5 inches and weighing only 105 lbs. to accomplish.



Miss Katherine Stinson at the Curtiss Plant, Buffalo, New York, June 19th.

Photo. by F. N. Birkett.

The Palladium fleet belonging to the British Emaillite Co., Ltd., on the road with "G.A.C." airscrews for Milton. The coachwork of the Palladium cars is by the Regent Carriage Co., Ltd.

More Aeroplanes from Overseas.

BY way of marking the third year of the war the Over-Seas Club on August 3rd handed a cheque for £13,500 to Lieut.-General Sir David Henderson, K.C.B., D.S.O., Director-General of Military Aeronautics. This represents eight additional machines, namely :—No. 101, Mr. W. Greenacre, of Durban ; No. 102, "Shanghai Race Club No. 4," per Mr. H. H. Read ; No. 103, "Hong-Kong No. 7," given by Mr. A. R. Lowe, per Mr. J. J. Bryan ; No. 104, "Hong-Kong No. 8," per Mr. J. J. Bryan ; No. 105, "The Henrietta," given by Mrs. Stromberg, New York ; No. 106, "Chicago," from several Chicago citizens ; No. 107, Christchurch branch of the Over-Seas Club ; No. 108, "The Chiefs of Ashanti No. 3."

As the money for these eight machines has been received during the past eight weeks, the Over-Seas Club and its members are now adding one machine every week to the equipment of the R.F.C., and have made a good start towards their second hundred machines.

German Aeroplanes in Holland.

IT was reported from the island of Texel, on August 6th, that a German seaplane, No. 1,101, was shot down near Cocksdorp on Texel by the Dutch. The machine, a large one, was completed at Friedrichshafen on April 21st. It came from the North Sea and was short of petrol. The occupants have been interned.

On the previous day a German aeroplane, No. 931, landed at Nes, on the island of Ameland, owing to engine trouble, and the two occupants were interned.

And One Over Switzerland.

A GERMAN aeroplane flew over Basle on August 4th at 6.15 p.m. It was met by a sharp fire from Swiss troops, and quickly made off across the frontier.

An Adverse German Opinion of Zeppelins.

THE German fireman may or may not know very much about aeronautics, but anyway *Feuer und Wasser*, the German fire-brigade paper, is evidently not letting itself go over Zeppelin successes. It says :—

"The enthusiasm for aeronautics which set in after the first successful Zeppelin voyages has turned many heads. Anyone, however, who has not got mashed potatoes or some corresponding substitute in his brain-pan must see that the expectations which shot up in abundance in 1908 concerning airship activity in war and peace have not hitherto been fulfilled. But, nevertheless, the air visionaries still rage. In the daily papers of late there have been headings such as "Airship Traffic between Hamburg and Constantinople," "The Airship Traffic of the Future," "Aerial Passenger Traffic in America," &c. These are all plans which for the present are incapable of being carried out, because aeroplane and airship are still far from fulfilling the required preliminary conditions. Whether they will ever fulfil them the future will show. Everything is possible in the end, but the end is not to-day."

An urgent appeal to Germans to put their money, not into "airways," but into waterways and water-power concludes the article.

Service Kits.

IT is not generally known that the present service dress for Army officers was designed by Burberry's at the request of the War Office. It was adapted, as a matter of fact, from the Burberry Sports Suit, which was considered by the military authorities to completely embody the ideal qualities required in a field uniform. The sports suit was the outcome of the great experience which this well-known firm has had in supplying outfits for sportsmen and explorers. Such strenuous pursuits in all climates render necessary both initiative in invention and highly-skilled craftsmanship in order that the garments supplied shall give complete satisfaction. Burberry's, as experts of long standing—their already established reputation for lightweight, self-ventilating and hygienic waterproofs was fully confirmed by the South African War—are well qualified to give information and advice on all matters pertaining to naval and military outfits.

For every branch of the Services, Burberry's have designed some special garment or personal accessory, which makes duty easier and directly contributes to the preservation of health. Their "Tielockens" and "Burfrons" top-coats, Klis puttees, Honduras saddle-bags, Wilopa bivouacs, and dozen other inventions of distinctive pattern, display a masterly acquaintance with officers' needs, and unfailing ability to find a solution for every textile problem that has ever confounded the Admiralty Board or Army Council.

Burberry's have just published two new catalogues—one for Military and the other for Naval kit—which will be sent post-free on application to their Haymarket house.

PUBLICATIONS RECEIVED.

The Trade of To-Morrow. By Ernest J. P. Benn, London : Jarrolds Publishers (London), Ltd. Price, 2*s.* 6*d.* net.

Thrilling Deeds of British Airmen. By Eric Wood. London : George G. Harrap and Co. Price 3*s.* 6*d.* net.

Ivan Heald : Hero and Humorist. London : C. Arthur Pearson, Ltd. Price 3*s.* 6*d.* net.

All the World's Aircraft. Founded by the late Fred T. Jane, Edited and compiled by C. G. Grey. London : Sampson, Low, Marston and Co., Ltd. Price 21*s.* net.

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